15¢

The OIL WEEKLY

OIL and GAS ENGINEERING

INTERNATIONAL AUTHORITY FOR THE PRODUCING AND PIPE LINE INDUSTRY

THE WEEK'S NEWS INTERPRETED

NORDSTROM VALVES

Keep upkeep down

Ask for Bulletin V-132

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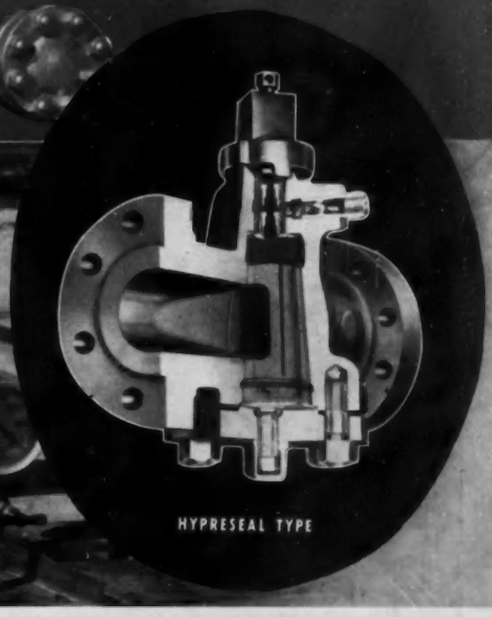
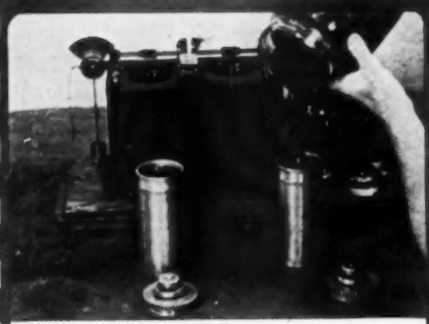


HYPRESEAL TYPE

DAY IN AND DAY OUT, Lone Star's oil-field service organization studies cementing problems at the rig, to keep the factory posted on field requirements.



OIL-WELL CEMENT RESEARCH goes on constantly . . . cement is tested for needed qualities and properties.

CEMENT BRIQUETTES are stored in sulphate solution; some cements disintegrate—'Starcor' proves its extra sulphate resistance.

IN PLANT OPERATION, rigid quality control assures cement of unvarying uniformity—made to measure for oil-field use.

'MADE TO MEASURE' FOR OIL FIELD SERVICE

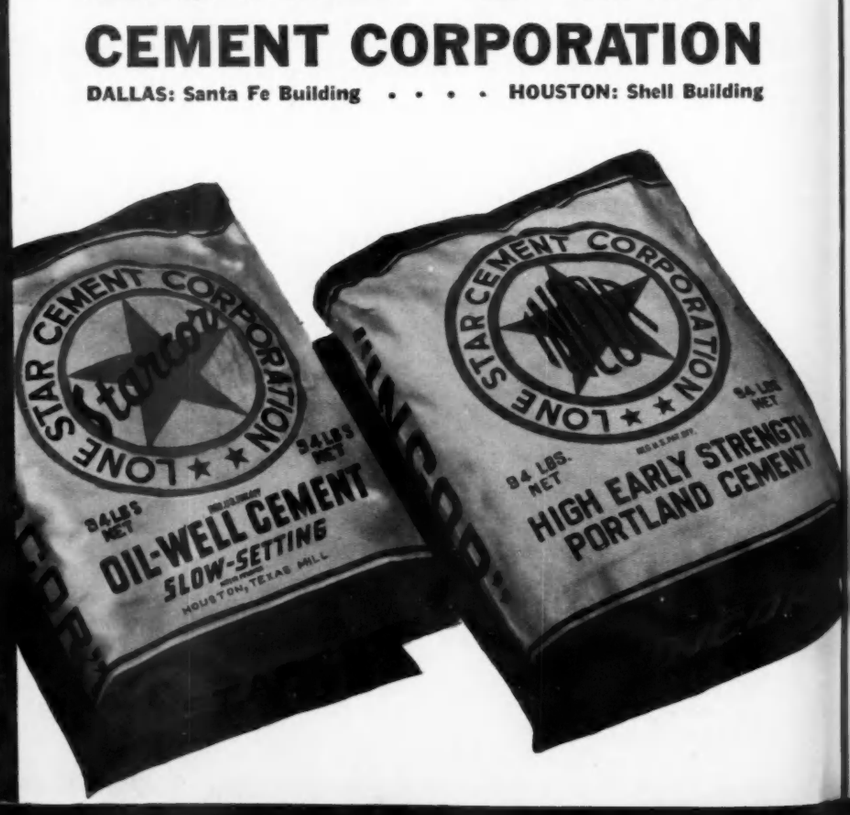
EVERYBODY likes a money-player . . . the kind of a guy who does his best when the money's on the line . . . the hitter you can depend on in a pinch. Yes, and the cement that always comes through when the going's tough. An Oil Man's Cement—'Starcor'*—with greater length and ease of pumpability needed for deep, hot holes. And 'Incor'* for wells of moderate depth, earlier drill out, wells on production quicker.

Cements kept abreast of the changing needs of oil-industry service by continuing research, in the field and laboratory. Making it possible to say, in the future as in the past—"When better cements are made, Lone Star will make them."

*Reg. U. S. Pat. Off.

LONE STAR CEMENT CORPORATION

DALLAS: Santa Fe Building . . . . HOUSTON: Shell Building



PICK IT UP

. . . and DROP IT IN!

IT'S AS SIMPLE AS THAT TO INSTALL THE VALVE ASSEMBLY IN A BAKER BAKWIK MODEL "B" DRILL PIPE FLOAT

NO TOOLS OR SPECIAL WRENCHES ARE REQUIRED

The Baker Bakwik Model "B" Drill Pipe Float is made with a straight bore body and contains a simple Valve Assembly constructed entirely without threads, which is *dropped into place by hand* and held securely by the tool joint pin above it. When an unrestricted fluid passage is desired, the Valve assembly can be quickly and easily removed from the Float Body.

POSITIVE ACTING BACK-PRESSURE VALVE

At the slightest reversal of pressure, the Valve, with its recessed oil resistant Seal, instantly seats against the Valve Seat, creating a positive, leakproof seal. The two oil resistant Side Seals act against the Float Body to likewise form a positive seal.

The efficiency of the Baker Bakwik Drill Pipe Float has been proved in thousands of wells in oil fields throughout the world and is considered standard equipment where a positive back-pressure valve in the drilling string is desired.

THE BAKER BAKWIK DRILL PIPE FLOAT AFFORDS THESE IMPORTANT ADVANTAGES

1. It prevents plugging the bit.
2. It eliminates the annoyance of pulling wet strings.
3. It relieves weight on the derrick and rig equipment as well as on the lines and draw works.
4. It lengthens the life of wire lines and brake bands.
5. It minimizes — often prevents entirely — serious damage in the event the drilling string should part.
6. It prevents blow-outs through the drill pipe.

ALSO OF IMPORTANCE . . .

is the fact that the Baker Bakwik Drill Pipe Float can easily be placed at any position in the drilling string; that the unit is designed for long life; that the Valve Assembly can be quickly and easily serviced on the rig floor; and that replacement parts can be secured at practically any Supply Store or Baker Warehouse.

VALVE ASSEMBLY QUICKLY AND EASILY SERVICED

Replacement of the Valve Seal is ordinarily the only servicing required during the normal operation of the Baker Bakwik Drill Pipe Float Valve Assembly . . . and this operation can be quickly accomplished in the four easy steps illustrated. When it is necessary to replace the Side Seals, new ones can be installed with equal ease.

Step 1

Step 2

Step 3

Step 4

Showing Bakwik Drill Pipe Float (complete with Valve Assembly) positioned in drilling string.

STRONG, SAFE VALVE ASSEMBLY CONSTRUCTION

Bakwik Drill Pipe Float Valve Assemblies are constructed of a minimum number of essential parts, each designed to give long, satisfactory service. The Cage is made of tough, abrasion-resistant steel, and the unrestricted opening through it is approximately the same area as the fluid passage through the tool joints. The Valve is made of special alloy iron cast integral with the steel stem. Both Valve and Valve Seat are ground to a perfect fit. The Valve Cage is constructed of close grained grey iron, carefully machined for accuracy. The Valve Spring is designed to perform long, efficient service. The two Side Seals and one Valve Seal are made of oil resistant packing, and afford maximum wear under all operating conditions.

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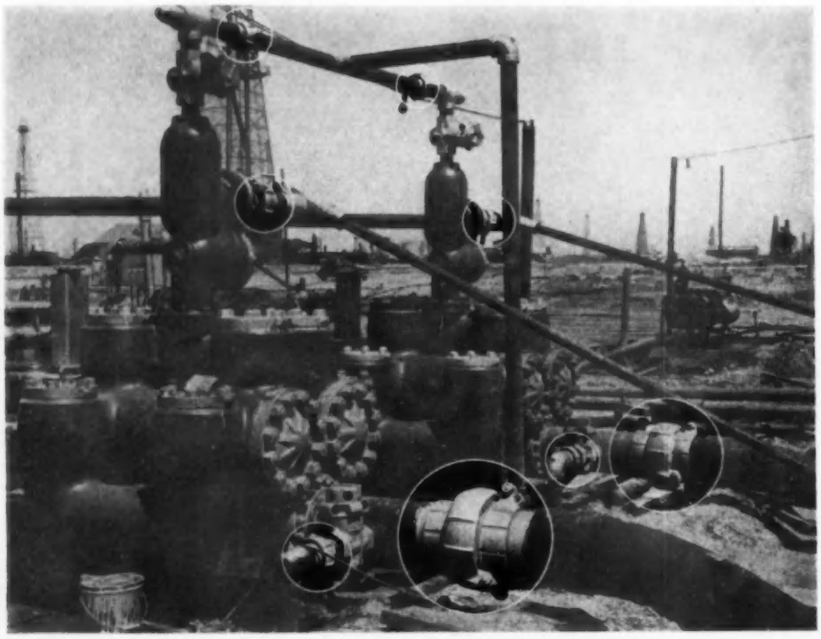
Thornhill-Craver Couplings are made from Lebanon CIRCLE L *Steel for*

GREATER RIGIDITY



DRAW them tight—and take another turn. Man, that's putting them on to STAY! Worry? Not a bit. They're Thornhill-Craver Couplings, made to "stay put" when the rigger has done his job.

No ordinary steel would have the high elastic limit which is demanded of these drilling rig couplings. But when Thornhill-Craver told us what they needed we put our metallurgists and foundry men to work and met their exacting requirements. Met them with a straight carbon steel but not with an "ordinary" carbon steel.

The Circle L Steel used in these couplings has a Brinell Hardness of from 160 to 200. The resulting high elastic limit supplies the much greater rigidity which the service demands.

Many leading makers of producing field equipment specify Lebanon Circle L Steel Castings. Regular, special or stainless, there is a Circle L Steel for every oil field requirement.

LEBANON STEEL FOUNDRY • LEBANON, PA.

ORIGINAL AMERICAN LICENSEE • GEORGE FISCHER (SWISS CHAMOTTE) METHOD

Lebanon STAINLESS AND SPECIAL ALLOY **Steel Castings**

Looking Ahead

WITH THE EDITOR

RADIOACTIVITY LOGGING makes possible the procurement of accurate well logs through casing. Since there are many thousands of wells now cased of which no accurate log is available, the recent development of radioactivity or gamma-ray logging promises to have a number of important applications in the oil industry.

Radioactivity surveys have been proven useful not only in locating the exact position of possible cased-off productive sands, but in determining the amount of sample lag in wells drilled by rotaries, in mapping subsurface structures for deeper drilling, in making good correlations, etc.

Radioactivity logging is such a new development that there has been very little material published on the method. An article in a very early issue is to discuss applications of the process, apparatus used, procedure and other interesting and valuable data relative to this type of work.

»

A SIMPLE SALT-WATER disposal system that is proving effective is in use in one of the Gulf Coast fields. Lined earthen pits are used exclusively for storage of salt water ahead of immediate injection into a non-productive sand. Disposal in this field is being carried out with very little effort and expense. One of our editors has just completed an interesting short article that describes this operation. If you are having salt water disposal problems and contemplate an injection system, you will want to read this forthcoming article.

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THE OIL WEEKLY

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The Oil Man's Calendar

NOV. 7- 8	American Association of Petroleum Geologists, Pacific Section, Los Angeles.
11-15	American Petroleum Institute, Chicago.
DEC. 5- 6	Mid-Continent Oil & Gas Association, Annual Joint Meeting of Standing Committee on State and Local Taxation, and Standing Committee on Federal Income and Excise Taxation, Tulsa.
12-13	Petroleum Electric Power Association, Baton Rouge.
16	Mid-Continent Oil & Gas Association, Annual Meeting of General Board of Directors, Tulsa Club Roof, Tulsa, Okla.
1941 FEB. 22	North Texas Oil & Gas Association, Wichita Falls.
27-28	American Petroleum Institute, Division of Production, Southwestern District, Shreveport.

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JAN. FEB. MARCH APRIL MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

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1 **MODEL L ENGINE:** Torque 590 ft. lbs. at 650-700 r.p.m. Continuous operating range 500-1200 r.p.m. Six cylinders. Bore 5¼", Stroke 6½". Equipped with built-in full throttling, variable speed governor. Electric starting available. ✔

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The next four months, in many parts of the country, will show a considerable increase in stationary power costs where fair-weather engines are being used.

Allis-Chalmers slow speed, high torque engines have the two factors most important in obtaining low cost year 'round power.

1. **A-C engines have performance to do the job and do it better, and at a lower operating cost on natural gas, gasoline, or distillate.**
2. **A-C engines protect you against loss of time that eats up profits and takes away any performance advantage, as well as protection against high maintenance.**

Each unit is priced and delivered complete with accessories, fan, water pump, air cleaner, oil filter, and built-in governor. Allis-Chalmers engines are manufactured, sold and serviced by one world-wide organization.

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The Changing Panorama

Federal Control if . . .

Federal control of the oil industry will be an early aftermath if Roosevelt is returned to office. This is the opinion expressed by nearly every oil man with whom we have talked recently. They think that it will come as a presidential edict. Ickes has dearly desired it, and Roosevelt has backed him up in every possible way, they say. They think that it will be announced as a national emergency measure.

As to how far the control would go in such an event no one seems to be sure. But even a toe hold on oil affairs by Ickes gives the average oil man a case of jitters.

The fact that the administration has continued its efforts toward some kind of federal control, even after losing the battle two or three years ago following a determined fight led by Southwestern independents, plus the Department of Interior-written bill handed to Congressman Cole by the President for presentation to this present Congress, and the pronouncements of Attorney General Jackson recently on the occasion of the anti-trust suits filed by the government against 22 major companies, are all cited as evidence that the Roosevelt administration, egged on by Ickes, is determined to grab control. It does not appear likely that Congress will pass the Cole bill, but a presidential edict, under emergency powers, might be used as a coup.

Some are asking, "after federal control, what? Will nationalization of oil reserves ever become an actuality? The President is not accredited with having such ideas now—but the fear is expressed that if the preliminary steps are taken through federal control, and Wallace should succeed Roosevelt, the well known socialistic leanings of Henry Wallace might make the menace a real one.

Oil company employees in the lower brackets of pay are not unanimously opposed to federal interference, or even ownership. Some of them seem to think that their positions might be improved. To such thinking the opponents of government control or ownership point to the status of post office employees who are really the forgotten men of the past several years.

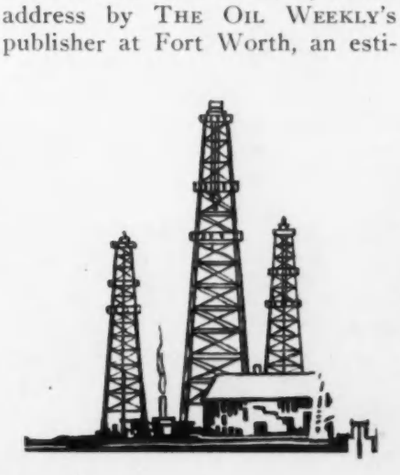
Bankers' Interest . . .

Oil conventions continue to attract bankers in their attendance. It is a poor convention, indeed, which does not draw out a large quota of bankers. This is explained in part by a report contained in "Important Facts About Texas Oil," recently released by the Texas Mid-Continent Oil and Gas Association.

The report, based upon canvass of banks in leading Texas cities and large financial institutions in cities outside of the state, says that Texas banks have out on loan to Texas operators $68,000,000, and that other banks have loans of $96,000,000 and that in addition to the foregoing the Texas petroleum industry has a long-term funded debt of $615,000,000. With such amounts at stake it is not surprising that bankers find oil conventions worth while things to attend.

Estimates on Daily Capacity . .

Elsewhere in this issue, in an address by THE OIL WEEKLY's publisher at Fort Worth, an estimate is made that the United States could immediately increase its daily production by 811,000 barrels. This estimate was secured by taking the lowest figures offered on seven important states by a large group of oil men and conservation bodies.



Here are the most conservative estimates offered on each of the seven states—estimates which will be subject to criticism only because they are ultra-conservative:

Texas	427,000 barrels per day
California	180,000 barrels per day
Louisiana	50,000 barrels per day
New Mexico	50,000 barrels per day
Kansas	50,000 barrels per day
Arkansas	29,000 barrels per day
Oklahoma	25,000 barrels per day

The next highest estimates above the foregoing are such as to warrant the conclusion that a loss of 100,000 barrels per day could be taken in Illinois during the next year and the United States could still, for at least a six-months period, without drilling additional wells, increase its production by 811,000 barrels per day.

Texas Commission . . .

Frequently there bobs up talk of the rearrangement of the work of the Texas Railroad Commission which is also the oil and gas conservation commission in the state. One hears talk of separating the railroad portion of the commission's duties from the conservation work and establishment of an appointive conservation commission to handle the conservation work now done by the railroad commission.

During the past week the traffic committee of the Texas State Manufacturers' Association recommended a separate state oil and gas commission on the grounds that the railroad commission of Texas is unable to devote sufficient time to freight-rate matters.

There has even been some talk that the next meeting of the Texas legislature will have presented to it such a proposition.

American OIL Industry STANDS READY

By RAY L. DUDLEY

Publisher THE OIL WEEKLY, before the 21st Annual Meeting of the Texas Mid-Continent Oil and Gas Association at Fort Worth, October 31.

FACED with a National emergency, the American oil industry stands ready—already ready—to meet every demand which may be made upon it. It stands not only prepared to meet the military and naval needs of our country, but it stands ready to meet them without in any wise disturbing the steady flow of its products to our industrial and private needs.

The American oil industry is peculiarly an American institution. It represents the essence of individualism—and that individualism is one of the reasons why it faces the call of our country today, confident in the knowledge that it is far out in front of all other American industries in its state of preparedness.

Nothing could be more humorous, or pathetic, than a proponent of government control of the American oil industry, trying to explain how it is that this highly individualistic industry stands in such splendid position to render service to its country in time of need.

And what a different picture this presents from that which is to be found in those countries where the oil industry is, in whole or part, owned or operated by governmental agencies.

We remember the gasolineless Sundays of World War No. 1, when a young industry was called upon to carry America and her allies "to victory on a wave of oil." We remember the demand which the oil industry then faced. We remember the additional difficulties the industry encountered because of a serious labor situation—and we recall how the industry in a year's time increased its production ten percent—in those days a 35-million-barrel increase. But we recall, too, that this was in the days when the operations of the East had largely become a matter of history, and the sleeping giant of Western oil production was yet to be aroused—and that then there was no back-log of proration from which to draw.

The oil industry has cause to be proud of its record in those days of national defense—and today it faces this same call and finds it far better prepared than it was in 1917.

Less than three weeks ago, speaking before the Independent Petroleum Association of America, at Dallas, Dr. Robert E. Wilson, himself an oil man with a highly scientific background, and known to us as the petroleum adviser to the Council of National Defense, referred to, "Tremendous underground reserves, available at a moment's notice for practically any emergency—and this without putting an extra load on the steel industry or the labor market to drill thousands of new wells."

Dr. Wilson well knew what he was talking about, although his speech was remarkable for its lack of detailed statistics. And Dr. Wilson was speaking from an abundance of information when he added, referring to the possibilities of expanding petroleum refining facilities, that, "Our civilian demand is so large that it still dwarfs every military demand except that for a few special products."

There should be no doubt in the public mind as to the state of preparedness of the oil industry. Yet, either because they do not read, or will not hear, there are some in high places in our land who preach in the public prints (I quote from such a recent utterance): "The very fact that in considering national defense we begin to calculate the life of our reserves in such small figures, is an ominous sign for national defense and our economic life."

The inference being that there is a possibility that the oil industry might fail America in an impending crisis.

You and I, gentlemen of the oil industry, know that there is no such likelihood. You and I recognize a smoke screen when we see one, but the public, ignorant of political flank attacks, wonders.

Why We Are So Sure

Now just what is this state of preparedness of the oil industry of which we are so sure? Why do we, who are in it or of it, speak with such confidence?

Unfortunately, such surveys as may have been made by the Army and Navy authorities as to what they can expect of the oil industry, are not public property. So far as the general public knows there has been no survey made to determine just how many barrels per day our production could be increased. I

wish that I had before me the results of a well-directed government survey on this subject at this time. I am sure that the figures would be even more impressive than the conservative figures I am about to present to you.

In the absence of such a government survey, I have had the pleasure within the past two weeks of making considerable inquiry into this subject. I have directed letters to what I consider to be a well posted group of oil-company executives and oil-conservation authorities. To them I put a simple question:

"In your opinion, how much do you think that the production of your state can be increased for a six months' period without adversely affecting ultimate recovery?"

Stated in other words, I inquired as to how much the production of each of the seven most important states could be increased without additional drilling and without interfering in any manner with the best practices of conservation.

I shall not give you the detail of all of the replies I received, although I would at this moment take recognition of the 17 men who replied to the 17 letters I mailed.

Taking the most conservative estimate from each state, I find that these authorities estimate that the production of these seven states could be increased by 811,000 barrels per day — and this without drilling a single additional well in these states, and without adversely affecting due conservation procedure.

This would be an automatic increase of more than 21 percent in daily production, and I believe that this increase could be met for the nation and still allow for a drop of nearly 100,000 barrels per day in Illinois during the coming year.

This increase is almost equivalent to the entire daily average production of the United States throughout the year 1916.

To give you an idea as to how conservative the figures actually are, the estimate I included on Texas, indicated that this state could increase its production by 427,000 barrels per day. As a matter of fact, one figure submitted in reply to my letter estimated that the 28 principal flush pools of Texas (not including East Texas) could produce a million barrels per day for a year, more than they are now producing, merely by adopting a rate of depletion of 6.2 percent which is the average rate of depletion for all prorated wells in the state outside of these 28 pools. Yet the Texas figure involved in this 811,000 barrel a day national increase, was only 427,000 barrels.

These figures would stand up in any well executed survey — and they would stand up as conservative.

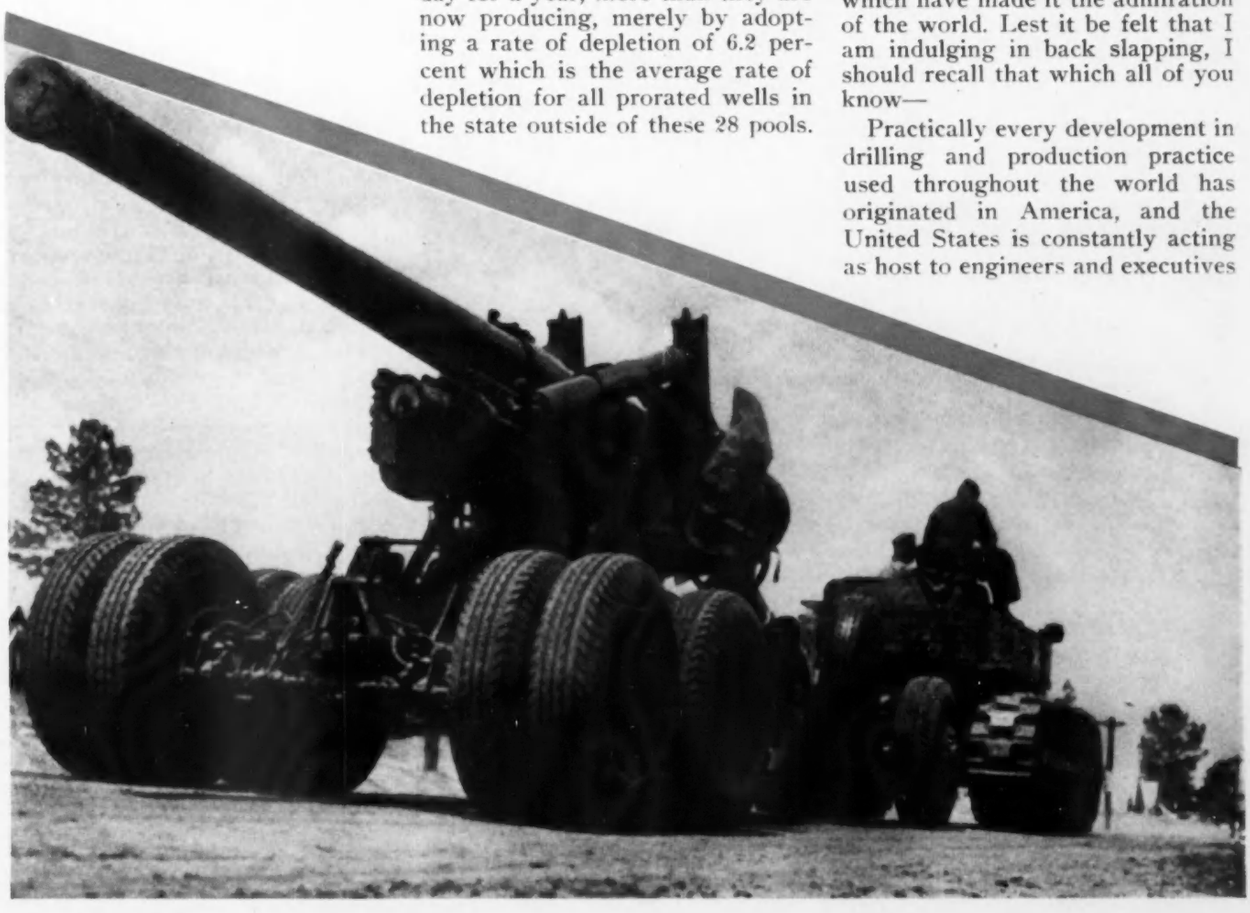
As to how adequate this extra supply of crude oil would be, I have heard of no estimate of consumption which even approaches such a figure, nor is it conceivable that such a demand would come even if we were in the midst of war.

That there will be an increase in consumption next year is a foregone conclusion, but the largest estimate I have heard on 1941 crude demand indicates only a 10 percent increase.

Search Continues

And I need not add that the oil industry has not stopped drilling wells, nor has its search for new oil abated. The oil industry, of course, will proceed in an orderly manner to drill wells and to add new fields and reserves of its own volition, unless hampered by federal legislation—and it will continue to improve those practices which have made it the admiration of the world. Lest it be felt that I am indulging in back slapping, I should recall that which all of you know—

Practically every development in drilling and production practice used throughout the world has originated in America, and the United States is constantly acting as host to engineers and executives



from abroad who come here to find out how we do it.

Last year saw the addition of 1,402,904,000 barrels of oil to American crude reserves. The amount discovered was 2,667,000,000, or more than twice the national consumption. I used the figure of my own organization. Moreover, the year marked the close of the greatest five-year discovery period in the history of the industry. And the year concluded with an estimated proven reserve in excess of 18,750,000,000 barrels. These figures are slightly more than the A.P.I. estimate. Compare this with the estimated reserves of 5,323,000,000 barrels in 1925, and with the 12,177,000,000 barrels of 1935. Here are figures available to any who would seek them out. They are regularly published and they indicate either ignorance or animus on the part of a federal servant who would lead the country into thinking that these reserves present an "ominous sign." "Ominous" when, in spite of constantly increasing consumption, they have actually more than trebled in 15 years.

It would not be amiss at this moment to recognize that consumption has been increasing annually and that reserves in terms of years' supply would provide 15 years' supply at present rate of consumption, but at the same time I would recall to your attention that the gasoline yield, for instance, from a barrel of crude oil is today twice as much as it was in 1917, and that one of the most acute problems the oil industry has had to face in recent years has been the consequence of its policy of steadily building up not only reserves but a surplus of wells from which the oil can be quickly drawn into commerce.

How has this increase in reserves been accomplished?

This will give you an idea:

Last year the oil industry in the United States spent more than $100,000,000 in its efforts to increase reserves. This, of course, does not include the cost of drilling and producing in proven areas. This hundred million dollars was spent in lease rentals, geophysical exploration, and in the drilling, in the United States, of more than 8,600,000 feet of wildcat wells. There were 2589 wildcat wells drilled in the United States in 1940. Only 270 of them discovered new fields. But the oil industry had to pay for them all. These wells, and all that went ahead of them in expense, were undertaken by this industry to add 1,400,000,000 barrels of crude to American proven reserves.

105 New Fields

During the 3 months ending with September 30, 1940, there were 105 new oil and gas fields discovered in the United States (in 10 states), 37 of them in Texas, and 35 new sands were found in old fields. No letting up here.

Today we have in excess of 43,000 flowing wells in the United States—we had that many January 1, 1940, and we have added materially to the account since then. It is largely from these wells that the 811,000-barrels-a-day increase would come. And we have 340,000 pumping wells in addition.

Foreign Workings

Roumanian oil is in the limelight these days. There are several fields in Texas alone, any one of which could produce as much oil as all of Roumania. And one of them does produce several times the amount of Roumanian daily production.

And while we have our attention on foreign fields, let us pause for a moment and see how the oil industry has fared in those three countries, known to some extent as oil-producing countries, in which oil is either a government monopoly or the government is in the oil business.

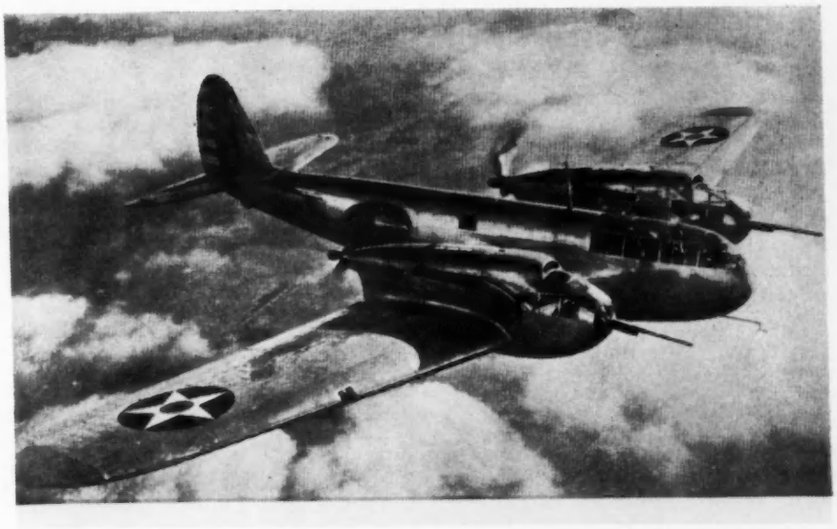
Foremost on the list is Russia—Russia whose reserves may be the greatest in the world, Russia whose governmental ignorance of the oil industry strangely reminds me of a quotation I referred to earlier in these remarks. Russia, my friends, is today a purchaser of United States gasoline, two cargoes this month having cleared for Russia from California. It has been my privilege to read recently certain reports on Russian activities. A public reading of these reports would prove humorous to us, but disastrous to certain individuals in Russia . . . but one statement, following a detailed account of poor equipment, incompetence, misdirection, and all the other things which bureaucracy begets, is significant: "Summarizing—it would appear that the Soviets still obtain nearly all of their oil from areas discovered prior to 1914 and they cannot increase this production in keeping with the anticipations."

Mexico's history of bureaucratic mismanagement is too well known even to need comment.

And finally we come to another country in which the government is engaged in the oil business. I shall, in connection with this country, confine myself to the written comment on the government-owned oil company there, appearing in a publication of Secretary Harold Ickes' Department of the

Interior. Here is the quotation, from page 43, July, 1940, issue of the Foreign Minerals Quarterly:

"Although this company under government ownership and operation has made much progress, it has nevertheless been influenced by local politics and favoritism, which as in most government-operated industries, results in lower efficiency and higher costs than those managed by private organizations where competition is the controlling factor."



Refinery Capacity

The preparedness of the oil industry is not confined to its ability to increase its crude-oil production quickly. It is prepared in the refining branch as well.

On January 1 of this year the total daily operating refinery capacity of the United States was, according to the United States Bureau of Mines, approximately 4,200,000 barrels per day, with plants having a daily capacity of 92,000 barrels building, and plants shut down having a capacity of 431,000 barrels daily, or a grand total of 4,700,000 barrels per day. More than 80 percent of the shutdown capacity is reported in good condition and can be put into operation quickly.

These refining plants on 30 days' notice could process 30 percent more oil than they have been called upon to process during this past year. In other words, there is ample refining capacity to take care of any possible increase in demand for ordinary refined products.

Aviation gasoline, however, is an extraordinary product. Commenting on American aviation gasoline, Dr. Wilson said recently:

"The relatively new product, 100-octane gasoline, largely synthesized by new catalytic processes from refinery gas, places this country in a peculiarly fortunate position."

Refinery technologists tell us that a barrel of American aviation gasoline contains from 25 to 30 percent more power and maneuverability than is contained in a similar quantity of the German aviation fuel. This means longer flights with less gasoline loads, or more speed, or it means in turn that the destructive load of a plane can be increased by reason of the effectiveness of this fuel.

When one approaches the subject of aviation-gasoline demand and the ability of the industry to meet it, there is a striking dearth of figures available to the oil industry. As yet the industry has not been presented with a definite picture as to what may be demanded of it. Such estimates as have been made within the industry have been compiled largely through guesswork and through putting a dubious two and two together with the hope that they will make a positive four. Many private conferences between oil companies and the government are taking place, but even those participating in such conferences do not at this moment have a clear-cut idea of what they will be expected to do. This is not meant as a criticism—the job facing the government is not a simple one.

Few Figures on Aviation Gasoline

We know, of course, from Bureau of Mines' figures that the domestic demand for aviation gasoline, for industry, private and governmental usage, has averaged 446,000 barrels per month for the past 10 months, and that we have exported an average of 331,700 barrels, making a total demand of 777,700 barrels per month for the past 10 months.

During that time our production of aviation gasoline has averaged approximately 920,000 barrels per month, resulting in additions to stocks, which have materially softened the market for this product.

Apparently the Army and Navy Air Forces have decided to concentrate their specifications into two groups, a 100-octane gasoline for fighting planes and a new 91-octane gasoline for training and bomber planes.

Now, 91-octane gasoline can be made from certain crudes produced largely in Texas and Louisiana plus certain doctoring with tetraethyl lead. The 100-octane gasoline is made by the blending of high-octane gasoline from these special crudes with what the industry has come to know as alkylation products referred to by Dr. Wilson.

"Alky" Gasoline

The figures I am about to give you may be subject to considerable correction but the best information I have been able to obtain is to the effect that the daily production of the so-called "alky" and similar products is approximately 30,000 barrels per day.

Blended with high-octane gasoline of an equal amount, a total of 60,000 barrels per day can be obtained from the plants now operating and those plants which are under construction and which should be operating within the next few months. This would give a total of 1,800,000 barrels of aviation gasoline per month. It may be that these figures are too high but I was told recently by the secretary of the Gulf Coast Refiners' Association, an organization of independent refining companies, that the independent refineries affiliated with this association could increase their runs of 91-octane gasoline by a minimum of 300,000 barrels per month.

I think that you might be interested to know that more than one half of the aviation gasoline

production of the United States is within the state of Texas.

If the figures I have given on the possible production of aviation gasoline with present and building facilities are too high, then we must fall back upon the necessity of adding additional alkylation plants. Under ordinary conditions an alkylation plant can be constructed in less time than is required to build a large bomber.

If the necessity for additional alkylation plants should arise there is only one thing which could stand in the way of their immediate construction—lack of ordinary cooperation on the part of the government, and it is inconceivable that such construction as might be needed could not be undertaken on short notice. Alkylation plants are quite expensive, costing in excess $1,000 per barrel daily capacity but the problem of building them is not a difficult one. The cooperation I referred to is priority purchase orders on certain types of equipment, and a fair price.

We have talked about the ability of the oil industry to produce aviation gasoline—what about possible demand?

As I have indicated, no figures have as yet been submitted to the industry and the estimates I am about to give are based on various statements made by those connected with the government and which have had to be translated into terms of possible demand.

To Fill Planned Storage

We hear that the government is planning to construct 7,500,000 barrels of steel storage for 100-octane gasoline which we are told would represent a 100-day-all-out possible demand. It is figured that on the basis of the present capacity and stocks of 100-octane gasoline, that this 7,500,000 barrels of storage can be filled without interfering with our current usage in 4½ months or less.

It is probable that there will be a fairly early demand, even in the event of continuation of peace, to fill storage at our various newly acquired bases. As yet the figures on such needs have not been made public.

If we should be called upon to maintain our present exports of aviation gasoline, to take care of our domestic, industrial and private needs and supply the Army and Navy what they would require, it is figured that the maximum demand could not exceed 3,000,000 barrels per month. It is inconceivable that such a demand could exist even if we had built all of the planes we have been talking about.

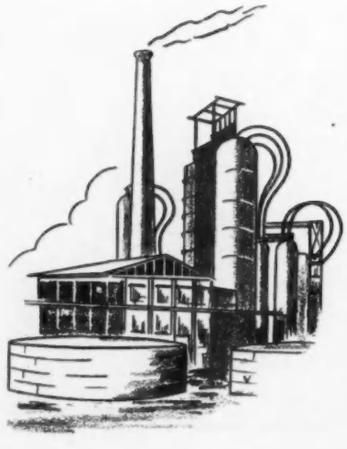
We figure that 3,000,000 barrels of gasoline per month could keep 25,000 planes in the air for 2 hours a day, or 12,500 planes in the air for 4 hours a day. Such a consumption would, in our opinion, be more than twice the combined total consumption of aviation fuel used by Britain and Germany in any month of the war to date.

It would appear very likely that the demand would not exceed 2,000,000 barrels per month although I do not claim to be a military expert, but the government is taking into consideration the advisability of reserve storage, realizing that the construction of unnecessary alky plants would not be of material benefit to the country.

Again, I must repeat that on these figures on aviation gasoline we have been sailing on uncharted seas, willing to accept more authentic information, but doubting seriously that the demand could possibly exceed the figures I have named.

Before leaving this subject of aviation gasoline it must be said that the development of 100-octane gasoline is a comparatively new thing and that the position of the oil industry as a source of supply of aviation gasoline at this time merits the deepest appreciation of the American people.

Distribution is an important consideration. At this time all important fields have pipe-line connections. Unless molested by federal legislation it appears that new fields as they are added also will be provided with outlets. The pipeline industry has become so accustomed to breaking records in construction, that new speed records no longer excite.



The industry within recent years has built gasoline lines—and can build more quickly as the need arises.

Our tanker fleet has several times the carrying capacity of 1917.

There are, of course, other places in which the oil industry offers its services from a preparedness standpoint. Explosives from petroleum products are needed and will be provided. As a matter of fact the possibilities of by-products from crude petroleum constitute an amazing new field, the gates of which we have only entered. Last week a contract was signed for the construction in Texas of a plant to produce from petroleum a basic product used in the manufacture of T.N.T.

While ready to aid national defense with everything from fuel up to and including explosives, the oil industry is also doing its part in another highly important phase.

As we hear of the tremendous sums being appropriated for national defense we realize that somebody must pay this bill. It is, therefore, interesting to note that the oil industry has been, and is, and unquestionably will continue to be a heavy contributor to the government's income through taxes. We obviously are not pleading for additional taxes but we should like to note that during the past 18 years while earning slightly more than $4,200,000,000, the oil industry and its products have paid in taxes a total of $11,800,000,000.

And now in summing up the state of preparedness of the oil industry we have found that the industry is ready for such demands as may be put upon it. I can see only one thing that could possibly interfere with the smooth functioning of the oil industry in this matter of national defense. The one thing which could interrupt the smooth flow of service of the oil industry to national defense would be unwarranted government interference or control. That it is not necessary is proven by the state of preparedness of the oil industry today. That it would be most dangerous is proven by the history of countries that have tried the experiment abroad.

Completions Run High Despite Small October Decrease

DESPITE a slight decrease in completions in October, field work in the United States has been exceptionally active this year, and it still appears that over 30,000 completions will be entered as the drilling record for 1940.

Only in two years so far, 1920 and 1937, have completions exceeded 30,000. The third most active year heretofore was 1926, with approximately 29,000 completions. And the 1940 record almost certainly will surpass that one.

In fact, if this year's record should fall short of 30,000 new wells, completions would have to average less than 72 daily in November and December, whereas they actually have been that low only in a few exceptional months in the past 5 years.

Completions averaged 80.9 daily in October, and a similar or higher average is indicated for November, as 100 more rigs were active on November 1 than on October 1.

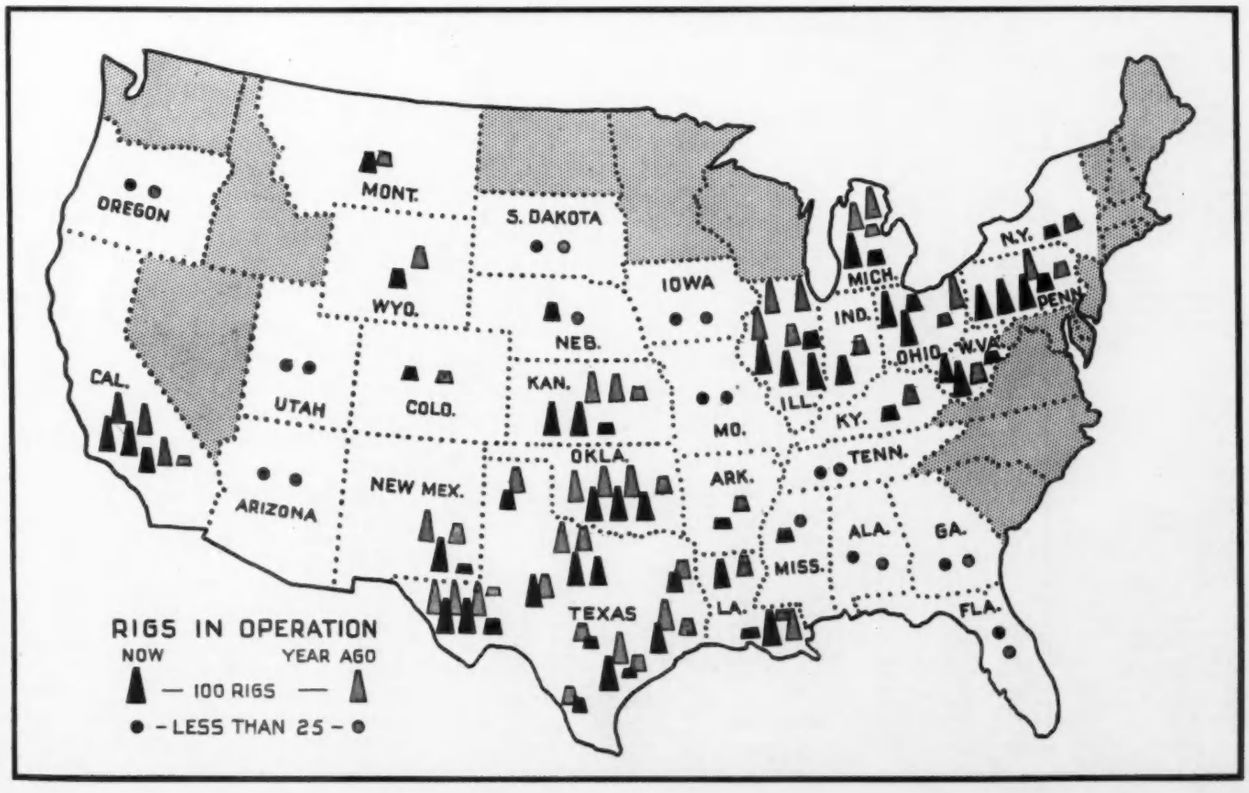
December, too, may be expected to bring a continuation of development on about the same scale as October drilling, as completions normally follow approximately a level trend in the closing months of the year.

Tending to sustain drilling henceforth will be the exceptionally great industrial activity and resultant large employment and brisk business in general, which circumstances may be expected to assure large demand for petroleum products and relatively steady markets in the oil industry. Conditions within the industry also remain conducive to generally satisfactory markets, with exception of the gasoline situation, which is marred by excessive stocks.

There have been reductions in postings for high-gravity crudes in several Mid-Continent states, in reflection of the weak gasoline market. But prices of other crudes are holding, as the markets for products other than gasoline are generally firm. Especially in demand are both light and heavy fuel oils, and crudes suitable for manufacture of those products are actively sought. The markets for lubri-

Drilling Rigs in Operation Now as Compared with Year Ago, by Districts

This map-chart is based on detailed figures shown in an accompanying table.



cants are gradually improving, and crudes with high lube content are likely to be henceforth in better demand.

These market conditions indicate that producers should have sufficient confidence in coming months to proceed with relatively active drilling programs, although local conditions will continue to influence development in the individual districts of the country.

The natural decline of flush production in Illinois, for example, may be expected to slow down field work in that state, although completions and active operations so far have been well maintained.

California development currently is discouraged by the unsteadiness of markets on the Pacific Coast, and if additional restrictions should be imposed on exports to Japan, curtailment of the state's production would be necessary, and drilling likely would be reduced. However, oil field discoveries have been lagging in California; and the future probably will bring increased exploration efforts, which might open up new fields for competitive development.

In the 4 weeks ended October 26, 2265 wells were completed in the United States, an average of 80.9 daily. The month's completions were slightly under those of September, 2315 wells having been finished in the 4 weeks ended September 28, an average of 82.7 daily. The October completions also were nominally under those of October, 1939, which averaged 82.0 daily.

Daily average completions in October in recent years have been as indicated herewith.

October of:	Wells Completed Daily
1933	46.0
1934	55.0
1935	64.2
1936	79.1
1937	102.0
1938	76.2
1939	82.0
1940	80.9

Although there were fewer completions in October than in September in the United States as a whole, several districts showed increases. Louisiana accounted for 151 new wells in the 4 weeks ended October 26, compared with 118 in the preceding 4 weeks, with both the northern and southern divisions of the state showing gains.

Nebraska furnished 9 new wells, against 4 the month before; Oklahoma 147, against 145; Wyoming 17, compared with 4; Kentucky 38, against 36; West Virginia 63, against 52; and Texas 673, compared with 643. Gains in completions occurred in Eastern Texas, North Texas, the Texas Gulf Coast, the Texas Panhandle, and West Central Texas.

Districts where October completions fell short of those in September included Arkansas, California, Illinois, Indiana, Kansas, Michigan, Mississippi, New Mexico, New York, Ohio, Pennsylvania, West Texas, and the Corpus Christi, Laredo, and San Antonio areas of Southwest Texas.

Rigs in Operation

Rigs in operation in the United States on November 1 totaled 3921, the number having increased 100 over the 3821 active on October 1. These figures embody wells actually drilling, rigging up, or temporarily shut down, and are based on reports obtained by this publication's staff men throughout the country. The 3921 active operations of November 1, 1940, slightly exceeded the 3905 reported for November 1, 1939.

First 10 Months

In the first 10 months of this year, 25,472 wells were completed in the United States, or 13.4 percent more than the 22,467 finished in the corresponding months of last year. Development has continued, therefore, to exceed expectations.

Cumulative completions in the first 10 months of recent years have been as herewith indicated:

First 10 Months of:	Total Wells Completed
1933	9,569
1934	15,631
1935	18,872
1936	22,087
1937	27,423
1938	23,171
1939	22,467
1940	25,472

Outstanding gains in drilling have occurred this year in Mississippi, Alabama, and Nebraska, and there have been more than twice as many completions in 1940 as in 1939 in Indiana and North Louisiana.

In reflection of better average prices of Pennsylvania-grade crude, New York and Pennsylvania have had over 50 percent more drilling in 1940 than in 1939, although development has been curtailed in recent months, with crude in less demand, because of

Rigs in Operation More Numerous Than Month Ago and About Same as Year Ago

STATE OR DISTRICT	TOTAL RIGS IN OPERATION Drilling, Rigs Up, Shut Down				DETAILS OF NOVEMBER 1, 1940 FIELD ACTIVITY					
					Rigs in Operation			Prelim. Activity		
	Year Ago (Nov. 1 1939)	Month Ago (Oct. 1, 1940)	Now (Nov. 1, 1940)	Percent Change From Year Ago	Drilling	Rigs Up	Shut Down	Derricks	Locations	Total Operations
Alabama	2	8	7	+ 250.0	4	...	3	...	...	7
Arizona	8	7	7	— 12.5	1	...	6	...	1	8
Arkansas	54	23	24	— 55.5	16	2	6	...	2	26
California	323	273	279	— 13.6	178	66	35	...	48	327
Colorado	31	32	36	+ 16.1	14	...	22	...	2	38
Florida	4	3	4	.....	....	1	3	...	...	4
Georgia	1	2	2	+ 100.0	....	...	2	1	...	3
Illinois	375	303	332	— 11.5	273	14	45	13	42	387
Indiana	67	94	85	+ 26.9	41	...	44	5	26	116
Iowa	1	3	3	+ 200.0	2	...	1	...	...	3
Kansas	231	224	229	— 0.9	189	20	20	15	10	254
Kentucky	71	66	53	— 25.4	32	...	21	2	...	55
Louisiana	202	179	212	+ 4.9	173	18	21	26	38	276
North Louisiana	71	56	92	+ 29.6	65	7	20	19	3	114
South Louisiana	131	123	120	— 8.4	108	11	1	7	35	162
Michigan	223	143	127	— 43.0	91	14	22	9	21	157
Mississippi	15	23	35	+ 133.3	23	7	5	7	1	43
Missouri	17	16	17	.....	10	1	6	1	1	19
Montana	40	61	61	+ 52.5	33	1	27	...	5	66
Nebraska	1	26	44	+4300.0	30	3	11	1	1	46
New Mexico	163	106	114	— 30.1	82	5	27	...	10	124
New York	59	41	41	— 30.5	30	4	7	3	8	52
Ohio	127	251	252	+ 98.4	169	43	40	15	39	306
Oklahoma	350	284	295	— 15.7	230	32	33	31	17	343
Oregon	1	1	1	.....	...	...	1	...	...	1
Pennsylvania	158	352	351	+ 122.2	264	22	65	25	64	440
South Dakota	1	1	1	.....	...	1	...	...	...	1
Tennessee	6	9	7	+ 16.6	3	...	4	...	...	7
Texas	1,210	1,000	1,007	— 16.8	795	73	139	61	312	1,380
East Texas Field	9	16	13	+ 44.4	8	4	1	3	7	23
East Texas Border Co.'s	11	13	11	.....	5	2	4	2	...	13
Rest of East Texas	44	42	47	+ 0.7	28	4	15	4	10	61
North Texas	194	173	199	+ 2.6	167	4	28	12	78	289
South Texas	304	211	217	— 28.6	167	23	27	18	99	334
Corpus Christi Area	166	114	117	— 29.5	91	11	15	11	71	199
Laredo Area	71	58	60	— 15.5	49	7	4	5	17	82
San Antonio Area	67	39	40	— 40.3	27	5	8	2	11	53
Texas Gulf Coast	146	135	98	— 32.9	94	3	1	13	22	133
Texas Panhandle	109	72	70	— 35.8	59	4	7	5	14	89
West Texas	313	233	250	— 20.1	198	19	33	4	53	307
West Central Texas	80	105	102	+ 27.5	69	10	23	...	29	131
Utah	1	9	9	+ 800.0	5	...	4	...	...	9
West Virginia	86	213	219	+ 154.7	148	35	36	13	37	269
Wyoming	77	68	67	— 12.9	35	1	31	...	5	72
Total United States	3,905	3,821	3,921	+ 0.2	2,871	363	687	228	690	4,839

lagging exports. New York's 834 completions in the first 10 months of 1940 compared with 507 in the like months of 1939, a 64 percent increase. Pennsylvania meanwhile furnished 3112 new wells, against 1986, a 57 percent gain.

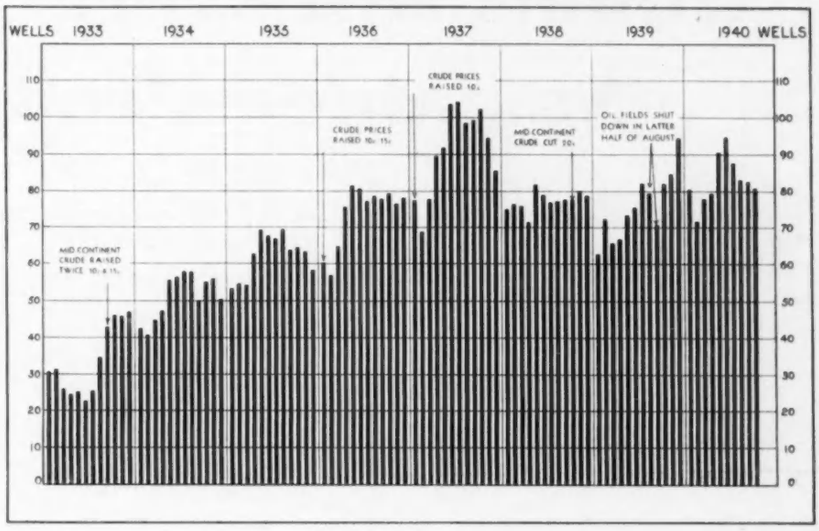
Other areas that have shown increases of around 50 percent in completions this year have included the Texas Panhandle, where new wells totaled 539 against 342, and West Central Texas, where the total was 608 compared with 407.

Gains of 30 to 40 percent have occurred in Kansas, South Louisiana, Montana, and North Texas. As compared with 1194 wells completed in the first 10 months of 1939, Kansas accounted for 1661 in the corresponding months of 1940. South Louisiana's gain was from 652 to 874; that of Montana from 114 to 154; and of North Texas from 1384 to 1796.

Wyoming has had 18 percent more drilling in 1940 than in 1939, completions having totaled 123 against 104 in the 10 months' period.

Increases in other districts have been less than 10 percent. Illinois has accounted for 3338 new wells this year, compared with 3079 last year, an increase of 8.4 percent. New Mexico's 546 completions represented a gain of 1.5 percent over the 538 for the first 10 months of last year. Ohio's increase from 782 to 845 completions amounted to 8 percent. Oklahoma showed a 2 percent gain, from 1720 to 1755 completions. West Virginia furnished 487 new wells, against 465, a 5 percent increase. Texas as a whole showed a 5.2 percent increase, despite curtailment in areas mentioned above. The Laredo district of Southwest Texas accounted for 898 completions, against 829, an increase of 8 percent.

Average Daily Well Completions in U. S. by Months



Well Completions Diminish Slightly in October But Hold Near Year-Ago Trend

STATE OR DISTRICT	MONTHLY COMPLETIONS: Total: Year Ago (Oct., 1939)[2]	Total: Month Ago (Sept., 1940)[3]	Total: Latest Data (Oct., 1940)[1]	Details for October, 1940[1]: Oil	Gas	Dry	Initial Oil Production	CUMULATIVE COMPLETIONS: First 10 Months: Total: 1939	1940	Percent Change	Details for 10 Months of 1940: Oil	Gas	Dry	Initial Oil Production
Alabama	....	2	2	....	....	2	.....	1	8	+ 700.0	.....	.....	8	.....
Arizona	....	....	....	....	....	....	.....	1	.....	.....	.....	.....	.....	.....
Arkansas	21	17	15	10	1	4	3,105	199	157	— 21.1	106	8	43	30,356
California[4]	77	75	66	58	....	8	53,776	893	873	— 2.2	719	12	142	645,266
Colorado	3	1	1	1	....	....	200	17	7	— 58.8	2	.....	5	300
Florida	....	....	....	....	....	....	.....	.....	1	.....	.....	.....	1	.....
Georgia	....	....	....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois	437	334	320	244	....	76	51,448	3,079	3,338	+ 8.4	2,735	19	584	2,507,477
Indiana	52	53	46	25	4	17	4,191	214	403	+ 88.3	199	49	155	28,185
Kansas	198	180	155	127	1	27	206,415	1,194	1,661	+ 39.1	1,286	47	328	1,982,551
Kentucky	49	36	38	18	1	19	1,480	536	298	— 44.4	136	7	155	8,669
Louisiana	145	118	151	99	7	45	18,634	922	1,404	+ 52.3	1,022	78	304	248,680
North Louisiana	26	53	77	50	7	20	4,285	270	530	+ 96.3	368	66	96	39,626
South Louisiana	119	65	74	49	....	25	14,349	652	874	+ 34.0	654	12	208	209,054
Michigan	173	90	88	31	16	41	9,381	1,208	1,012	— 16.2	499	52	461	97,481
Mississippi	3	16	8	3	....	5	825	12	153	+1175.0	74	1	78	44,699
Missouri	7	4	8	....	1	7	.....	68	25	— 63.2	.....	7	18	.....
Montana	20	18	18	8	5	5	695	114	154	+ 35.1	112	16	26	12,121
Nebraska	....	4	9	5	....	4	2,519	1	21	+2000.0	7	.....	14	3,656
New Mexico	85	42	34	24	3	7	10,931	538	546	+ 1.5	427	15	104	159,764
New York	[6]78	[6]68	[6]63	[6]63	....	....	184	[6]507	[6]834	+ 64.5	[6]818	7	9	3,066
Ohio	103	123	98	29	38	31	330	782	845	+ 8.1	356	267	222	3,768
Oklahoma	224	145	147	89	17	41	22,627	1,720	1,755	+ 2.0	987	137	631	249,681
Pennsylvania[5]	[6]226	[6]290	[6]244	[6]211	17	16	260	[6]1,986	[6]3,042	+ 53.1	[6]2,714	201	127	4,344
South Dakota	....	....	....	....	....	....	.....	.....	1	.....	.....	.....	1	.....
Tennessee	4	....	....	....	....	....	.....	4	8	+ 100.0	3	1	4	833
Texas	879	643	673	486	26	161	305,821	7,902	8,313	+ 5.2	6,027	253	2,033	3,462,037
East Texas Field	35	25	31	30	....	1	89,902	385	249	— 35.3	236	.....	13	473,594
Rest of East Texas	33	28	30	17	6	7	4,038	267	234	— 12.3	105	44	85	30,209
North Texas	145	134	169	114	1	54	52,690	1,384	1,796	+ 29.8	1,220	10	566	664,155
South Texas	235	187	160	102	8	50	40,277	2,294	2,201	— 4.1	1,380	66	755	523,051
Corpus Christi Area	126	98	85	61	3	21	31,096	1,128	1,089	— 3.5	777	31	281	402,759
Laredo Area	86	72	62	37	3	22	8,697	829	898	+ 8.3	529	32	337	112,692
San Antonio Area	23	17	13	4	2	7	484	337	214	— 36.5	74	3	137	7,600
Texas Gulf Coast	107	60	77	58	2	17	16,857	1,110	1,020	— 8.1	808	22	190	207,589
Texas Panhandle	49	38	42	34	7	1	8,041	342	539	+ 57.6	443	79	17	127,732
West Texas	219	128	119	110	1	8	91,452	1,713	1,666	— 2.7	1,542	11	113	1,368,322
West Central Texas	56	43	45	21	1	23	2,564	407	608	+ 49.4	293	21	294	67,385
Utah	....	....	1	....	....	1	.....	.....	3	.....	.....	1	2	.....
West Virginia	69	52	63	7	50	6	63	465	487	+ 4.7	98	311	78	696
Wyoming	16	4	17	12	1	4	7,742	104	123	+ 18.3	96	4	23	78,386
Total United States	2,869	2,315	2,265	1,550	188	527	700,627	22,467	25,472	+ 13.4	18,423	1,493	5,556	9,572,016

[1] Wells completed in the 4 weeks, or 28 days, ended October 26, 1940. [2] Wells completed in the 5 weeks, or 35 days, ended October 28, 1939. [3] Wells completed in the 4 weeks, or 28 days, ended September 28, 1940. [4] California completions except for October, 1940, revised in accordance with the American Petroleum Institute. [5] Bradford, Pennsylvania, completions except in September and October, 1940, revised in accordance with The Producers Monthly. [6] Includes water-intake wells.

Illinois Discoveries Indicate Sustained Production

WITH production down 30 percent from its peak of 506,500 barrels daily reached last June, Illinois as a disturbing factor in the Mid-Continent and Gulf Coast markets is temporarily on the wane. But there is no sound reason to expect a further drop of more than 50,000 barrels from the state's present production of 350,000 barrels in the next few months, nor is there any assurance that production will not again soar over 500,000 barrels a day.

These factors should be considered before conclusions based on the state's present declining production are projected into the future:

1. The Salem field, which accounted for the spectacular rise in production early this year with a heavy drilling program to the Devonian lime, has declined almost as far as may be expected for the time being at least. Completions in the Devonian, as well as upper horizons, have leveled off and may be expected to remain fairly constant during coming weeks. The flush initial yields of wells completed early in the year is in the past, and production has leveled off.

2. Exploration of the Trenton lime, underlying the Devonian, is under way at Salem, and in prospect at Louden, the state's second ranking field. This may cause another production spurt.

3. While wildcat drilling is down about 10 percent from last year, results of wildcat activity has resulted in 21 new fields since the turn of the year, compared to 18 during the same period last year. It is true none of them appear at present to be of major importance, but who knows when an important strike may be made?

4. Well completions, at 334 for September, are above the 322 for the same month last year and approximate the 330 average for the past 9 months. Completions in 1939 averaged 306 a month.

Previous Estimates Conservative

Thirteen months ago in a review of Illinois activity, prediction was made that the then rising production would reach 400,000 barrels early in 1940 unless checked by proration legislation (THE OIL WEEKLY, September, 1939).

Less than two months later the Devonian was opened in the Salem field, and the rapid development that followed boosted the state's production to a figure that most optimistic champions of the state would not predict a year ago.

While the Devonian was considered 13 months ago as a possible new horizon for the 10,000-acre field, then obtaining production from 3 upper horizons, today the Trenton is similarly regarded. This deeper formation has been proven productive in recent weeks in the Centralia and Sandoval fields, both new areas obtaining production from Devonian and shallower horizons.

Several Trenton tests for the Salem field are being talked, and it is considered likely that the first one will be taken to that horizon before the close of the year. Should the Trenton prove productive, the field will see a revival of drilling similar to that experienced early

Illinois Continues to Expand at Rapid Pace

There has been only a slight decrease in the rate in the new field discoveries in Illinois during the past 13 months. Production during the period was far in excess of what was anticipated at this time last year, uncurbed by control legislation, but new fields, new sands and extensions have added to the state's ultimate recovery, and remaining reserves now stand well above the estimate of a year ago.

The state now boasts 70 new fields, all opened since January 27, 1937, and in them 7389 oil wells were completed to prove 65,065 acres. Many fields have multiple-sand production, adding materially to ultimate recovery which is estimated at 755,530,000 barrels. Production of 214,735,000 barrels had been taken from new fields up to October 1, leaving an estimated remaining reserve of 550,965,000 barrels. The new-field discovery rate of 2 fields a month, experienced during the past 13 months, is above the average of 1.6 fields opened each month since the first field of the new development era.

The rise of Illinois as an oil-producing state during the past 45 months is shown in the accompanying table:

DATA (All figures cumulative since January 1, 1937)	STATUS OF DEVELOPMENT IN NEW FIELDS ON GIVEN DATE					MONTHLY RATE OF INCREASE FOR GIVEN PERIOD			
	January 1, 1938	October 1, 1938	May 1, 1939	September 1, 1939	October 1, 1940	1-1-38 to 10-1-38	10-1-38 to 5-1-39	5-1-39 to 9-1-39	9-1-39 to 10-1-40
Number New Fields Producing	7	19	32	44	70	1.3	1.8	3.0	2.0
Oil Producing Wells Completed	244	1,425	2,720	3,975	7,389	131	185	314	263
Acres Proven Productive	1,805	36,350	46,130	52,760	65,065	3,838	1,397	1,657	946
Estimated Ultimate Recovery	25,000,000	318,054,000	461,810,000	596,372,970	755,530,000	32,561,555	20,393,714	33,640,742	12,242,848
Cumulative Production	2,350,000	15,464,000	40,112,385	69,811,420	214,735,000	1,457,111	3,521,198	7,424,759	11,147,968
Remaining Reserve	22,650,000	302,590,000	421,767,615	526,561,550	550,965,000	31,104,444	17,025,373	26,198,484	1,877,188

Illinois Development, Production and Reserve Data by Fields and Years

FIELDS	COUNTY	DISCOVERY WELL	Date	Producing Horizon	Average Sand Thickness	Initial Production	Total Depth, (Feet)	Productive Acres	THOUSANDS—BARRELS			Completed Wells		Present Status	
									Ultimate Recovery	Production to Date	Remaining Reserve	Oil	Dry	Drlg.	Rigs
		1937 Discoveries													
Patoka	Marion	Adams Oil & Gas Co's. Merryman 1, SE SW 21-4n-1e	1-27	Bethel	16 ft.	50	1418	800	3,250	1,963	1,287	106	21	...	...
Clay City	Clay-Wayne	Pure Oil Co.'s Weiler 1, SE SW SE 33-3n-8e	2-27	Cypress	6 ft.	40	2613	3000	30,000	15,300	14,700	394	22	1	1
				McClosky	12 ft.										
Cisne	Wayne	Pure Oil Co.'s Bradley 1, SW NW 26-1n-7e	3- 7	Aux Vases	5 ft.	100	2987	1250	8,000	2,170	5,830	47	1	...	...
				McClosky	11 ft.										
Noble	Richland	Ohio Oil Co.'s Arbuthnor 1, NWC 8-3n-9e	8- 2	McClosky	10 ft.	1990	2990	6050	30,000	8,600	21,400	232	33	1	2
Rinard	Wayne	Benedum & Trees' Knapp 1, SW NW SW 33-2n-7e	10- 5	McClosky	10 ft.	500	3154	40	10	6	4	1	2	...	...
Centralia	Clinton-Marion	Adams Oil & Gas Co.'s Schmidt 1, CSE SE NE 2-1n-1w	11-30	Bethel	21 ft.	155	1384	1800	50,000	13,522	36,478	872	74	1	2
		Lilly et al's Gum 1, SW SE NE 13-1n-1w		Cypress	14 ft.										
				Devonian	8 ft.	782	2933								
Louden	Fayette	Carter Oil Co.'s Miller 1, CW½ NW NW 12-8n-3e	12-31	Cypress	18 ft.	70	3170	18,000	200,000	36,340	163,660	1680	95	3	23
				Stray	16 ft.										
				Bethel	4 ft.										
7 Fields		**1937 Total**	...			**461***	**2581***	**30,940**	**321,260**	**77,901**	**243,359**	**3332**	**248**	**6**	**28**
		1938 Discoveries													
Dix	Jefferson	Carters Oil Co.'s Tate 1, CW½ NW NE 10-1s-2e	1- 1	Bethel	16 ft.	90	2000	1650	7,500	1,425	6,075	63	...	...	1
Aden	Wayne-Hamilton	Texas Co.'s Silverman 1, CE½ SW NW 16-1s-7e	1-15	McClosky	11 ft.	500	3287	400	2,000	195	1,805	7	3	...	...
Olney	Richland	Pyramid Petroleum Co.'s University of Chicago 1, NW 26-4n-10e	5- 4	McClosky	9 ft.	1000	3036	800	5,000	920	4,080	38	11	...	...
Schnell	Richland	J. V. Wicklund's McCauley 1-A, NE SW NW 7-2n-9e	6-22	McClosky	8 ft.	1053	2984	100	400	143	257	4	5	...	...
Flora	Clay	Kingwood Oil Co.'s Graham 1, CS½ SW NE 13-3n-6e	6-22	McClosky	9 ft.	550	2983	700	3,000	295	2,705	18	6	1	...
Salem-Lake Centralia	Marion	Texas Co.'s Tate 1, NW NW 5-1n-2e	7- 6	Bethel	41 ft.	730	1911	10,000	300,000	103,215	196,785	2,363	74	9	23
				Aux Vases	11 ft.										
				McClosky	30 ft.										
		Magnolia Petroleum Co.'s Young 24, NW SW NW 20-2n-2e		Salem	7 ft.	288	2230								
		Kingwood Oil Co.'s Shanafelt 18-A, NE NW NE 20-2n-2e		Devonian	16 ft.	3024	3502								
North Aden	Wayne	H. H. Weinert, Inc.'s Twist 1, NE NW SW 33-2s-7e	7-27	McClosky	13 ft.	400	3325	1,350	8,000	1,635	6,365	66	10	...	...
Ina	Jefferson	Nollem Oil & Gas Co.'s Kelley 1, NE NW NE 25-4s-2e	7-27	McClosky	7 ft.	12	3003	100	100	15	85	1	2	...	...
Leech Township	Wayne	Iroquois Oil & Gas Co.'s P. Walker 1, CNW NW NW 16-3s-9e	9-14	McClosky	6 ft.	150	3438	200	500	205	295	14	2	...	...
St. James	Fayette	Rosenthal's Washburn 1, NE SE NW 30-6n-3e	9-14	Cypress	32 ft.	188	1622	1,700	10,000	1,400	8,600	168	12	1	5
Roaches	Jefferson	Magnolia Petroleum Co.'s T. J. Harvey 1, NW NE SW 22-2s-1e	11-29	McClosky	6 ft.	217	2263	200	500	205	295	11	4	...	...
Boyleston	Wayne	Roche & Voyles' McPherson 1, CS½ SE NE 4-2s-7e	12-13	McClosky	8 ft.	1203	3269	1,200	3,000	850	2,150	71	7	1	10
Marcoe	Jefferson	Magnolia Petroleum Co.'s J. W. Dare 1, SE SW NE 22-3s-2e	12-24	McClosky	18 ft.	237	2765	100	250	12	238	1	3	...	...
Mt. Erie	Wayne	A. P. Muhlbach's Anderson 1, NW NW NW 2-1s-8e	12-31	McClosky	12 ft.	48	3092	40	100	9	91	1	0	...	...
14 Fields		**1938 Total**	...			**606***	**2794***	**19,140**	**340,350**	**110,524**	**229,826**	**2,826**	**139**	**12**	**39**
		1939 Discoveries													
Barnhill	Wayne	Carl Robinson's Felix 1, SW SE SE 27-2s-8e	2- 7	McClosky	6 ft.	460	3409	1,080	5,000	1,130	3,870	57	...	2	1
Cordes	Washington	G. H. Blankenship's Dennis 1, NE SW NE 14-3s-3w	2- 7	Bethel	12 ft.	25	1239	1,250	4,000	1,000	3,000	126	10	1	...
Mattoon	Coles	Wheeles & Whisenant's Michael 1, SW SW NW 1-11n-7e	2-21	Cypress	10 ft.	18	1919	10	5	4	1	1	2	...	...
Goldengate	Wayne	New Penn Development Co.'s Wagner 1, NW SW NE 30-2s-9e	3- 7	McClosky	5 ft.	20	3441	10	5	1	4	1	...	...	...
Enterprise	Wayne	Witcher's Fitch 1, CN½ SE SE 3-1n-8e	4-18	McClosky	20 ft.	194	3100	1,900	10,000	2,640	7,360	122	4	5	10
Stewardson	Shelby	J. A. Aylward's Wabash R. R. 1, CN½ N½ 27-10n-5e	4-18	Aux Vases	10 ft.	28	1969	50	50	8	42	2	...	...	...
Iola	Clay	Dick Duncan's J. H. Liggett 1, SE NW SE 17-5n-5e	5- 2	Aux Vases	23 ft.	42	2383	40	25	8	17	2	3	...	...
Tonti	Marion	Harvey et al's Mercantile Bank 1, NE SE 33-3n-2e	5- 2	McClosky	15 ft.	157	2193	750	10,000	2,900	7,100	50	8	...	...
				Aux Vases	13 ft.										
				Devonian	9 ft.										
Junction	Gallatin	Coates et al's Greene 2, SE SE SE 17-9s-9e	5-16	Waltersburg	25 ft.	130	1794	150	1,000	80	920	14	1	...	...
Griffin	Wabash	W. N. Bartlett's Stansfield 1, SW SE SE 19-2s-13w	6-13	Biehl	6 ft.	210	1719	1,200	15,000	700	14,300	86	20	4	2
				Cypress	5 ft.										
				McClosky	10 ft.										
Mt. Carmel	Wabash	Washburn's Pfeifer 1, SW SW SW 13-1s-13w	6-27	Tar Springs	15 ft.	44	1955	40	20	3	17	2	3	...	...
Whittington	Franklin	Gulf Refining Co.'s Hinman 1, SE SW NE 19-5s-3e	7- 5	McClosky	10 ft.	199	3068	40	25	10	15	1	...	...	...
				St. Louis	5 ft.										
Mill Shoals	White	Nation et al's McIntosh 1, CSE SW 31-3s-8e	7-11	McClosky	15 ft.	76	3405	750	2,000	430	1,570	37	4	2	2
				Aux Vases	40 ft.										
New Harmony	White	Sun Oil Co.'s Ford 1, NW NE NE 18-5s-14w	7-11	McClosky	15 ft.	20	3017	500	500	175	325	33	3	3	3
				Weiler	13 ft.										
Storms	White	Eason Oil Co.'s Storms Hrs. 1, CW½ SE SW 14-6s-9e	7-11	Waltersburg	21 ft.	†13.3	2992	1,030	10,000	716	9,284	107	9	2	8
				McClosky	6 ft.										
Keensburg	Wabash	Z. D. Neff's Bump 1, NW NE NW 9-2s-13w	7-25	Cypress	20 ft.	286	2424	1,000	7,000	2,200	4,800	154	17	...	3
Cravat	Jefferson	R. E. Vawder's Sarah Kell 1, NW SW NE 9-1s-1e	8- 8	Bethel	17 ft.	72	2084	200	300	60	240	10	...	...	...
Dundas	Richland	Pure Oil Co.'s Coen 1, SE SE 36-5n-9e	9- 6	McClosky	11 ft.	1458	2930	1,680	10,000	1,700	8,300	78	2	2	5
Grayville	Edwards-White	Kingwood Oil Co.'s Johnson 1, SE SE NE 18-3s-11e	9- 6	McClosky	5 ft.	415	3269	140	500	85	415	7	2	1	...
Stokes	White	Penn-Illinois Oil & Gas Co.'s Pyle 1, E½ SE NE 12-6s-8e	10- 3	McClosky	11 ft.	423	3132	220	1,000	160	840	10	1	1	1
Calvin	White	J. W. Carter et al's Johnson 1, SW NE NE 12-4s-10e	10-10	McClosky	15 ft.	210	3201	200	200	55	145	31	1	8	11
				Bethel	11 ft.										
				Tar Springs	12 ft.										
				Paint Creek	8 ft.										

[*Continued on page 22*]

Illinois Development, Production and Reserve Data by Fields and Years—(Continued)

Cowling	Edwards	C. C. McFadden's Bump 1, CSE SW 34-2s-14w	10–10	15 ft.	240	2643	60	300	65	235	13	2							
Phillipstown	White	Sun Oil Co.'s Garner 1, SW SE SW 1-5s-10e	10–24	10 ft.	120	2964	60	300	40	160	6	3							
Fairman	White	Shell Oil Co.'s Lutz 1, NW NW SE 18-3n-1e	11– 7	13 ft.	107	1459	130	1,000	165	835	13	4							
Marion-Clinton	Washington	Shell Oil Co.'s Dix 1, CNW NE NE 19-3s-1w	11–28	6 ft.	46	1370	30	50	15	35	3	2	1						
Dubois	Wayne	Cayuna Oil Co.'s Brough 1, CE½ SW NE 23-1s-8e	12– 5	6 ft.	30	3266	20	30	1	29	1								
So. Mt. Erie	Wayne	Marvel Oil Co.'s Beall 1, CNE NW 11-2s-13w	12–12	10 ft.	287	2714	30	50	1	49	2								
E. Keenaburg	Wabash			18 ft.															
Hoffman	Clinton	Bell Oil Co.'s Knolhoff 1, NE SE SW 2-1n-2w	12–30	8 ft.	42	1329	200	200	25	175	32	6						6	
28 Fields		1939 Total			190*	2511†	12,770	78,160	14,377	64,083	1,001	107	31	53					
		1940 Discoveries (9 Months)																	
Burnt Prairie	White	Bishop et al's Griffin 1, SE SE SW 25-3s-8e	1–23	8 ft.	103	3505	140	200	50	150	13	1						6	
Iron	White	J. W. Carter et al's Johnson 1, SW NW NE 25-6s-8e	2– 6	21 ft.	635	2528	270	5,000	750	4,250	35	2	4					7	
				9 ft.															
Bone	Jasper	Pure Oil Co.'s Warren Cons. 1, CE½ NE NW 33-6n-10e	3–19	6 ft.	348	2947	60	150	30	120	3	1						1	
Albion	Edwards	Noah & Morrison's Barnes 1, SE NE NE 24-2s-10e	3–26	10 ft.	132	3240	250	3,750	300	3,450	33	2	4					7	
				8 ft.															
				10 ft.															
Dale	Hamilton	Kingwood Oil Co.'s Wilson 1, NW NW SE 6-6s-7e	3–26	15 ft.	115	2695	170	1,000	160	840	17	8						3	
Lancaster	Wabash	Riddle et al's Seibert 1, NE NE NE 4-1n-13w	4– 2	9 ft.	500	2743	270	2,000	200	1,800	26	8						4	
Inman	Gallatin	Colbeck's Duffey 1, NE NW NW 25-8s-9e	4– 9	8 ft.	7	3097	30	10	2	8	1								
Centerville	White	Sun Oil Co.'s Brown 1, CS½ SE NW 2-4s-9e	5–26	12 ft.	840	3375	60	100	10	90	3	4							
				6 ft.															
West Liberty	Jasper	Pure Oil Co.'s Aldrige 1, CE½ NE NW 17-5n-10e	6– 4	11 ft	1422	2850	220	250	40	210	12		1					4	
Maud	Wabash	B. Lambert's Sieler 1, SE SE SE 27-1s-13w	6–18	9 ft.	192	2926	60	100	15	85	7								
Roundprairie	Wayne	Lessing Aleh's Dickey 1, CS½ SE NE 3-1s-6e	6–18	4 ft.	20	3300	10	10	1	9	1								
Roland	Wayne	Kingwood Oil Co.'s Martin 1, NW SW NE 13-2s-8e	7– 2	5 ft.	36	2245	10	10	1	9	1								
Irvington	White	Gulf Refining Co.'s Buhl 1, CNW SE SW 23-1s-1w	7– 2	16 ft.	683	1538	320	1,500	100	1,400	33	4		3					
	Washington			4 ft.															
				6 ft.															
West Enterprise	Wayne	Pure Oil Co.'s Macklin 1, E½ NW NW 1-1n-7e	7– 9	6 ft.	664	3036	15	100	10	90	4	1						4	
No. Boos	Jasper	Pure Oil Co.'s Bergbower 1-A, CE½ NE SE 16-6n-10e	7– 9	8 ft.	200	2882	30	20	1	19	2		2	2					
Hoodville	Hamilton	Kingwood Oil Co.'s Morris 1, SW SE NE 34-5s-6e	7–16	8 ft.	150	3200	100	50	3	47	5		5	5					
No. New Harmony	White	Superior Oil Co.'s Fitton 2, NE NE NE 27-4s-14w	7–16	7 ft.	90	2296	60	250	30	220	9		2						
				6 ft.															
Waggoner	Montgomery	H. Randall et al's Street 1, SW SW NE 31-11n-5w	7–30	8 ft.	28	625	10	100	10	90	3	4	1	3					
Woburn	Bond	National Refining Co.'s Spindler 1, NW NW NW 10-6n-2w	8–13	8 ft.	209	1021	110	750	50	700	17	1							
W. Centralia	Clinton	Sistler's Phoenix 1, NW NW SW 14-1n-1w	9–31	5 ft.	25	1415	10	10	No Runs	10	1								
Thompsonville	Franklin	Manley Oil Co.'s Downen 1, SW SW SW 26-7s-4e	9–31	10 ft.	800	3118	10	100	No Runs	100	1		2	3					
21 Fields		1940 Total (9 Months)			342*	2576*	2,215	15,460	1,763	13,697	230	28	23	57					
70 Fields		Grand Total 1937-38-39-40			353*	2600*	65,065	755,530	201,565	550,965	7,399	522	72	177					

* Average. † Millions cubic feet of gas, discovery and confirmation test were gas wells.

this year; but whether production will climb as rapidly will depend upon whether the horizon is as flashy as was the Devonian.

With a ready market for Illinois oil in the midwestern states and scattered tracts at Salem held by small operators, rapid development of any new horizon is assured.

Success of wildcat activity, calculated on the basis of discoveries to wildcats drilled, shows better for the first 9 months of this year than last year. Twenty-three new fields were opened in the drilling of 318 wildcats thus far this year, a percentage of 7.2, while during 1939, 28 fields were opened in the drilling of 480 wildcats, a percentage of 5.8. The improved discovery rate indicates finding of new fields has not become difficult.

While the wildcat campaign had included only 50 counties to the end of 1938, 14 counties were added in 1939, and 6 more during the past 9 months. Completion of wildcats drilling in 4 other as yet untested counties will shortly bring the total to 74 of the state's 101 counties.

Twenty-one counties have been proven productive of oil during the current campaign, all since early 1937: Bond, Clay, Clinton, Coles, Edwards, Effingham, Fayette, Franklin, Gallatin, Hamilton, Jasper, Jefferson, Lawrence, Marion, Montgomery, Richland, Shelby, Wabash, Washington, Wayne and White.

550,965,000 Barrels Underground

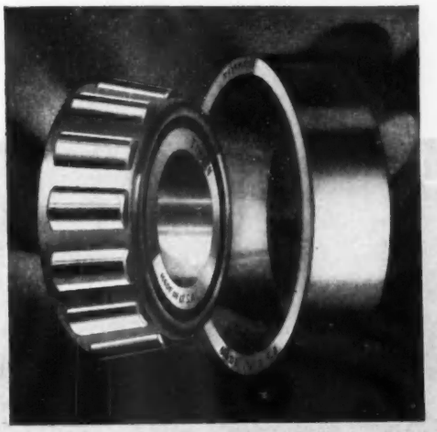
New discoveries, field extensions and new horizons in established fields have increased the state's estimated ultimate recovery from 596,372,970 to 755,530,000 barrels, or 27 percent, during the past 13 months. Production of 144,923,500 barrels during the same period, bringing cumulative production of the new fields to 214,735,000 barrels, provides an estimated remaining reserve of 550,965,000 barrels.

Productive acreage increased during the period from 52,760 to 65,065 acres, or 23 percent.

The number of producing oil wells completed in new fields totals 7389, or 86 percent more than the 3975 completed on September 1, 1939.

Dry holes drilled within ¼-mile of production in the development of the 70 new fields up to October 1 totaled 522, while 288 unsuccessful tests were drilled in defining the 44 fields opened up to September 1, 1939.

Wells drilling in new fields on



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THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

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Trend of Illinois Production, Completions and Operating Rigs

Illinois production reached its peak in June of this year, averaging 506,500 barrels daily, climbing to that point from 14,430 barrels exactly three years earlier. Production has declined sharply in the last three months as the intensive drilling campaign to the Devonian in the Salem field leveled off. There is little reason to expect continuation of the rapid drop which has lowered production to about 350,000 barrels daily, although further slight declines may come during the winter months as unfavorable weather slows drilling. Production during the last seven months of 1937 averaged 25,713 barrels daily, climbed to a 65,771-barrel monthly average in 1938, almost quadrupled to 257,766 barrels daily average in 1939, and gained another 64 percent to 421,486 barrels for the first nine months of this year.

Completions advanced from 22 in June, 1937, to 452 in December, 1938, and during 1939 and thus far this year have fluctuated between 210 and 415. Low months are early in the year when thaws turn Illinois fields into mud and make it difficult to get to location. Completions averaged 57 a month for the last seven months of 1937, 212 for 1938, 306 for 1939, and 330 for the first nine months of this year.

Rigs in operation mounted to 447 in May of this year, the month before the production record was established, and have since declined to 306. The average for the first nine months of this year stands at 380, compared to an average of 346 for last year, indicating the fewer rigs now in operation will about balance the high months earlier in the year.

YEAR	*Crude Oil Production (Daily Average)	† Completions	† Rigs in Operation
1937:			
June	15,430	22	66
July	17,100	27	93
August	21,760	49	113
September	28,300	92	114
October	29,450	76	116
November	32,950	73	138
December	35,000	61	114
1937 Average 7 Months	25,713	57	108
1938:			
January	36,400	57	119
February	39,600	57	114
March	42,900	107	153
April	46,250	89	179
May	46,400	122	171
June	48,700	192	210
July	53,000	176	197
August	66,500	207	231
September	89,300	255	311
October	89,400	431	380
November	102,400	394	441
December	128,400	452	371
1938 Average	65,771	212	240
1939:			
January	143,400	239	347
February	162,200	243	284
March	173,500	282	285
April	180,500	210	331
May	220,900	319	361
June	236,100	384	311
July	281,800	274	332
August	317,800	374	375
September	348,100	322	397
October	342,000	321	417
November	340,700	366	354
December	346,200	343	356
1939 Average	257,766	306	346
1940·			
January	371,000	234	386
February	404,400	288	391
March	438,100	281	370
April	430,400	287	390
May	446,300	399	447
June	506,500	391	400
July	445,300	340	372
August	386,450	415	359
September	363,920	334	306
1940 Average 9 Months	421,486	330	380

* Production in barrels from United States Bureau of Mines monthly reports, except September, which was taken from American Petroleum Institute reports.

† Completions and rigs in operation from Oil and Gas Drilling Report of the Illinois State Geological Survey. Rigs in operation include active drilling wells and rings standing. All data covers the calendar month.

October 1 numbered 72, down 2 from the 74 drilling in established fields 13 months ago. Rigs in service showed a greater decline, from 236 to 177.

Of 306 rigs in operation on October 1, 249 were being used in established fields and 57 in wildcat drilling, while of 375 rigs in service 13 months ago, 310 were being used in proven areas and 65 in wildcat drilling. This indicates a decline of 8 active wildcat operations, or 12 percent.

Exploration

Exploratory drilling is guided by subsurface geology and geophysics, principally the reflection seismograph; soil analysis was conducted in some areas, gravimeters and magnetometers are being used to a small extent, and structure test drilling is carried on by a few companies.

Approximately 10,620 square miles, extending outwards from the deeper part of the Illinois Basin, were covered by seismograph surveys during 1939, and many of the wildcat tests made this year were prompted by the information obtained. New areas being surveyed extend west from the central basin into Christian, Montgomery, Bond, Washington and Perry counties, south into Williamson, Saline and Gallatin counties, and east into Crawford, Lawrence and Wabash counties.

New Fields in 21 Counties

Seventy-four Illinois counties have been tested for oil, 21 of them successfully, in the wildcatting campaign that started in 1937 and was in full swing by 1938. Fifty counties recorded wildcat completions in 1938, an additional 14 counties in 1939, 6 more the first 9 months of this year, while in 4 other counties wildcat tests are now underway.

Wildcat tests now drilling total 122, scattered in 44 counties. The accompanying table shows wildcat activity and results by counties since January 1, 1938.

	1938 Completions		1939 Completions		1940 Completions 9 Months		Drilling Sept. 1
	Oil	Dry	Oil	Dry	Oil	Dry	
Adams	..	..	..	2	..	1	1
Alexander	..	..	..	..	..	1	..
Bond	..	9	..	7	1	12	9
Brown	..	2	..	4	..	2	..
Bureau	..	2	..	..	..	3	1
Cass	..	1	..	..	..	1	..
Champaign	..	3	..	2	..	..	..
Christian	..	4	..	3	..	1	..
Clark	..	12	..	11	..	6	7
Clay	1	6	1	16	..	8	..
Clinton	..	45	1	14	1	24	12
Coles	..	8	1	13	..	5	2
Cook	..	..	..	1	..	..	..
Crawford	..	9	..	4	..	5	3
Cumberland	..	5	..	5	..	1	..
De Kalb	..	..	..	..	..	..	1
De Witt	..	..	..	..	..	..	1
Douglas	..	..	..	2	..	1	1
Edgar	..	5	..	9	..	5	3
Edwards	..	..	2	16	1	11	1
Effingham	..	8	..	12	..	5	1
Fayette	1	58	..	14	..	15	4
Ford	..	..	..	..	..	1	1
Franklin	..	6	1	7	1	2	..
Fulton	..	1	..	3	..	1	..
Gallatin	..	..	1	11	1	8	4
Greene	..	..	..	2	..	..	1
Hamilton	..	1	..	7	2	6	5
Hancock	..	2	..	1	..	1	1
Hardin	..	1	..	..	..	..	..
Henderson	..	..	..	1	..	..	1
Henry	..	..	..	..	..	1	..
Iroquois	..	1	..	..	..	1	..
Jackson	..	3	..	1	..	5	2
Jasper	..	6	..	6	4	4	3
Jefferson	4	26	1	27	..	7	..
Jersey	..	..	..	1	..	2	1
Johnson	..	..	..	1	..	1	..
Knox	..	..	..	1	..	1	..
Lawrence	..	10	..	10	..	5	3
Livingston	..	..	..	1	..	..	..
Logan	..	..	..	..	..	1	..
McDonough	..	5	..	6	..	3	2
Macon	..	2	..	2	..	2	..
Macoupin	..	6	..	..	..	7	1
Madison	..	4	..	7	..	6	1
Marion	1	52	2	31	..	11	5
Massac	..	..	..	..	..	2	1
Menard	..	1	..	..	..	1	..
Monroe	..	1	..	8	..	7	..
Montgomery	..	6	..	9	1	13	6
Morgan	..	4	..	1	..	..	..
Moultrie	..	2	..	4	..	..	..
Peoria	..	..	..	1	..	..	1
Perry	..	6	..	15	..	3	..
Pike	..	1	..	2	..	4	..
Pope	..	..	..	..	..	1	..
Randolph	..	6	..	6	..	5	3
Richland	2	5	1	7	..	3	..
St. Clair	..	4	..	11	..	4	2
Saline	..	3	..	6	..	2	3
Sangamon	..	1	..	2	..	..	..
Schuyler	..	1	..	3	..	5	1
Scott	..	..	..	..	..	..	1
Shelby	..	17	1	16	..	6	3
Tazewell	..	..	..	2	..	1	2
Vermillion	..	1	..	..	..	..	..
Wabash	..	6	4	18	2	13	8
Warren	..	2	..	1	..	..	1
Washington	..	19	2	29	1	8	3
Wayne	5	7	4	24	2	14	3
White	..	5	6	21	6	15	5
Williamson	..	..	..	5	..	5	..
Woodford	..	..	..	..	..	..	1
Total	14	401	28	452	23	295	122

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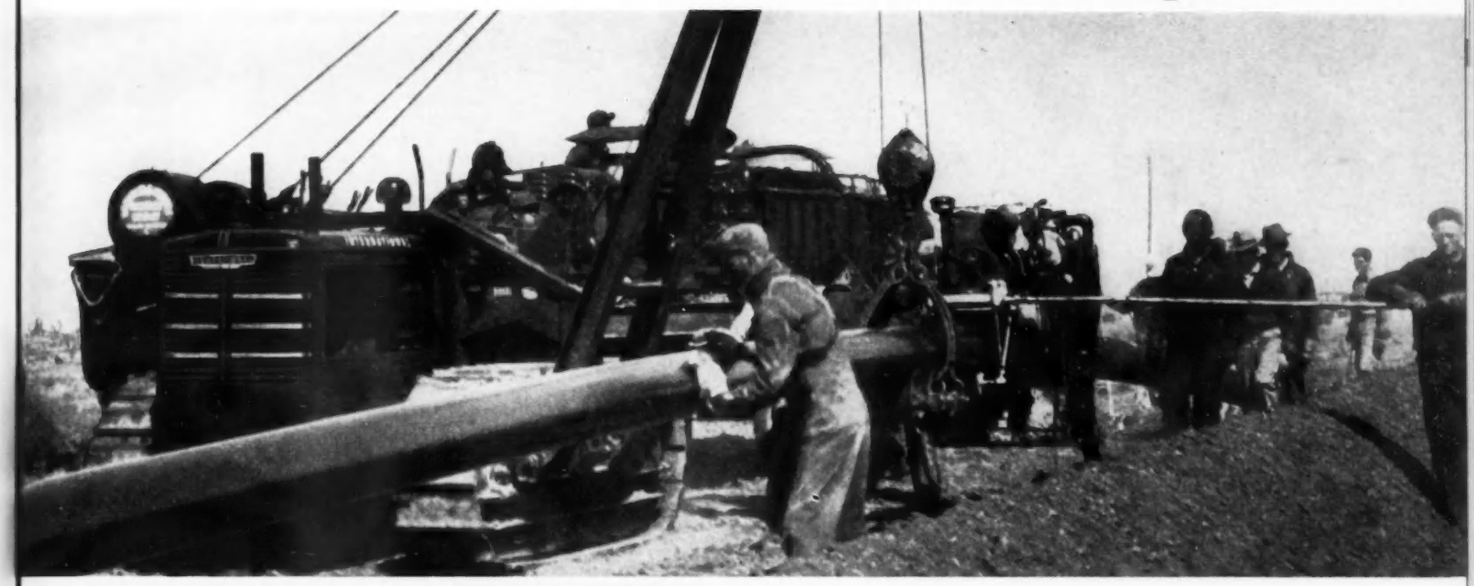

Above: Slush pits are dug fast and at low cost with TracTracTors, such as this TD-14 owned by A. L. McAlister of Wichita Falls, Texas.

Below: And here's another example of TracTracTor utility—the small model with gasoline engine pulling rods from a 1900-foot well for the Forest Oil Company on a lease at Bradford, Pa. The larger sizes of TracTracTors handle servicing jobs on deeper holes with comparable efficiency and economy.

Here is power, speed, and dependability for pipe-line work—the big International TD-18 Diesel shown on the job near Beloit, Kansas, equipped with pipe layer which includes double-drum winch and 15-foot boom. Oscar Fredell is the owner.

International Diesel TracTracTors

have brought *new ideas of crawler design, efficiency,* and *economy* to every branch of the oil industry. With the introduction of the big, powerful International TD-18 a year ago, *new standards* were set. And now the new TD-14, TD-9, and TD-6 extend International's advantages to *all* crawler-tractor needs.

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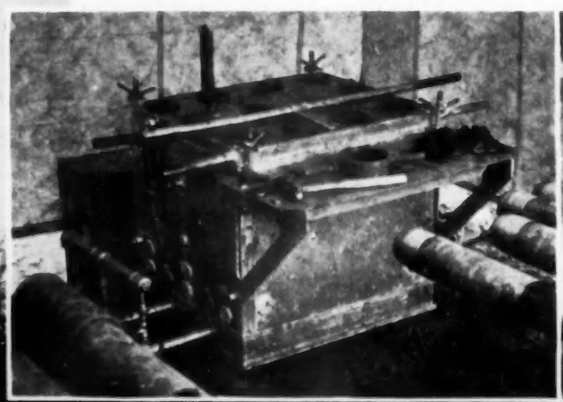

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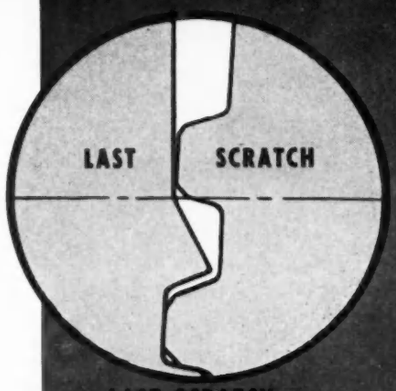
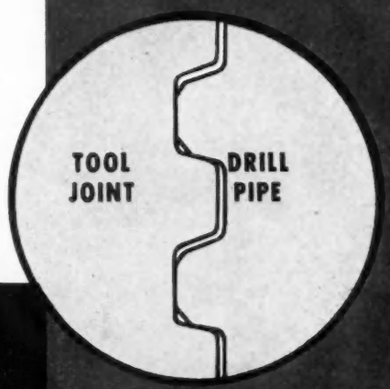
Leakage and washouts are entirely eliminated by an inside seal located, as shown in the illustration, where it cannot be damaged or battered in operation.

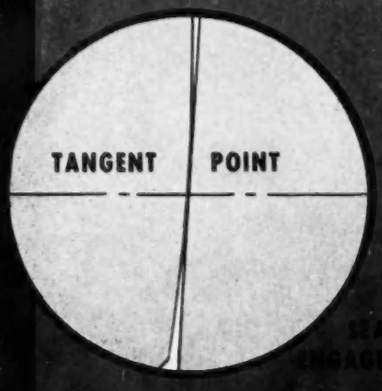
Complete information about National Shrink Thread Tool Joints is available at any National Store.



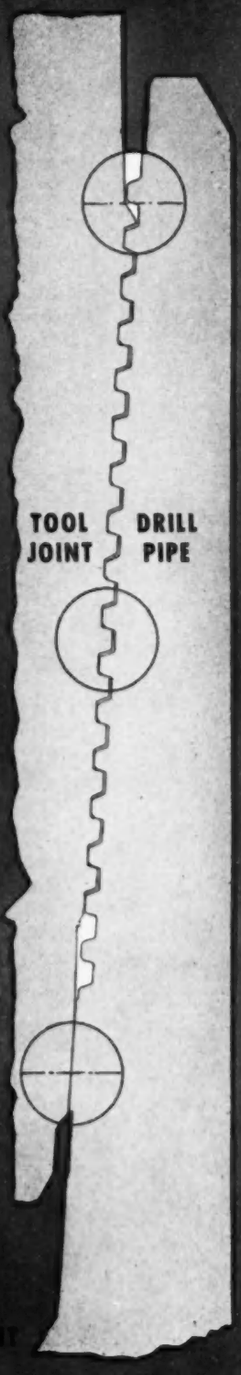
LAST SCRATCH THREAD ENGAGEMENT

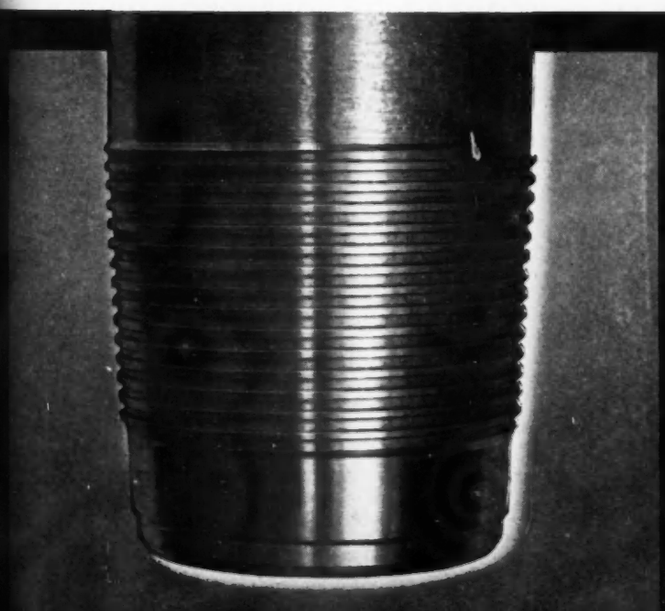


TYPICAL THREAD ENGAGEMENT



SEAL ENGAGEMENT





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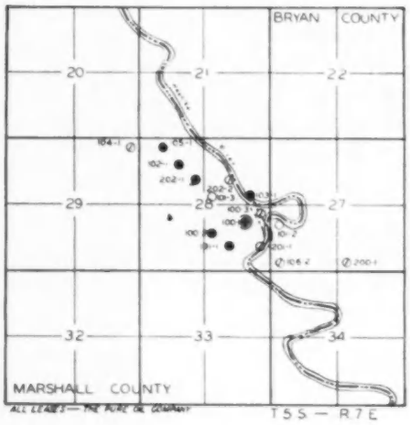
Cumberland Discovery Ranks Best for Oklahoma in 1940

SOUTHERN Oklahoma has contributed the state's outstanding discovery of 1940. The field is Cumberland, on the line between Marshall and Bryan counties. The Pure Oil Company which shot the area, blocked it solidly, and drilled in the discovery well.

Interest in the Madill anticline focused attention to the general region, and although initial exploratory effort by a number of interests failed to produce a new field, continued study showed Madill anticline to be only one of a number of anticlinal features and folds in a complex geologic province. Although sharp folds and faults are general in the area, the structure apparently was independent of such influence, and development has indicated the correctness of this assumption.

The Pure Oil Company leased 22,000 acres as a solid block to cover the structure and flanking sections. Location was made for Little 100-1 at C W½ NE SE 28-5s-7e, Marshall County, on the bank of Washita River.

Drilling started in Cretaceous with Trinity sand as the first marker about 120 feet. The Pennsylvanian was cut at 604 feet and Caney of Mississippian at 2500 feet. Hunton lime was at 3345 feet and Viola (Ordovician) lime was topped at 3925. Bromide, carrying the first oil, was topped at 4472 feet. Gas was found in Sycamore (Mayes) lime and in the lower part of Hunton lime. As the hole was to be a thorough test of all possibilities, it was drilled through the Bromide section, topping McLish formation at 5103 feet. It was deepened to Oil Creek, topped at 5589 feet. Hole was bottomed at 5640 feet with the bit in sand. This is the deepest test, and there is little reason for going through the Oil Creek for it lies on the Arbuckle lime and this, in turn, is on granite. Past drilling in southern Oklahoma has shown but little chance of Arbuckle production if there is no oil in Oil Creek immediately above. Also pointing to the improbability of sub-Ordovician production elsewhere on the anticline is the fact that the discovery is evidently near the peak of the structure where accumulation would be more probable, discounting the possibility of faultline influence.

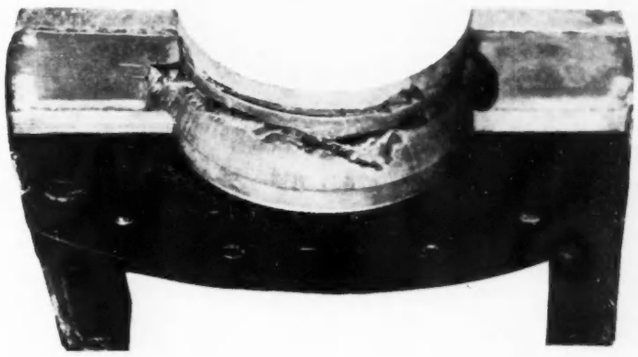


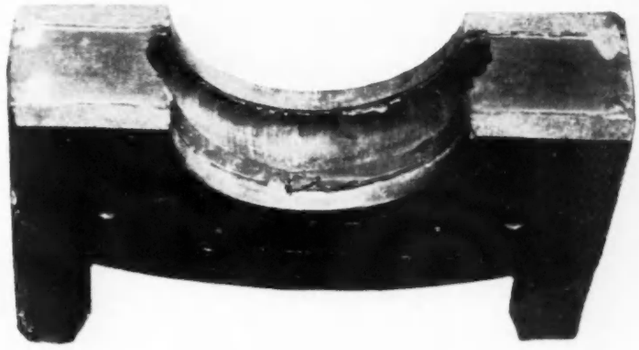
The discovery tested a gas cap in the top of the Bromide sand. This gas strata goes to oil in downstructure positions. After plugging back, Little 100-1 was on its initial production test by washing in on April 27, this year. In 24 hours the well flowed 2175 barrels through 2½-inch tubing under tubing pressure of 160 pounds and casing pressure of 700 pounds. There are 246 feet of open hole in the Bromide where the formation is erratic.

Following the report of the completed test, and earlier when the

Discovery well of the field was ready for first producting test April 27, 1940.

BLOWOUTS THAT *Didn't* HAPPEN...





AND PIPE THAT *Didn't* STICK!

The two sets of Cameron Self-feeding Ram Packing Elements shown herewith are typical of many removed from the rams of Cameron Type SDA Blowout Preventers sent to our shops for cleaning and checking after long field service.

No definite service records on these packing elements are available, but their worn condition graphically tells the story of **blowouts that didn't happen, and of drilling strings that didn't stick.** They prove conclusively that Cameron Type SDA Preventers not only seal the annular space swiftly and positively when required to do so, but also permit safe movement of drill pipe or casing through the closed rams under pressure to prevent sticking. This is but one of the numerous features of superiority of Cameron Type SDA Preventers.

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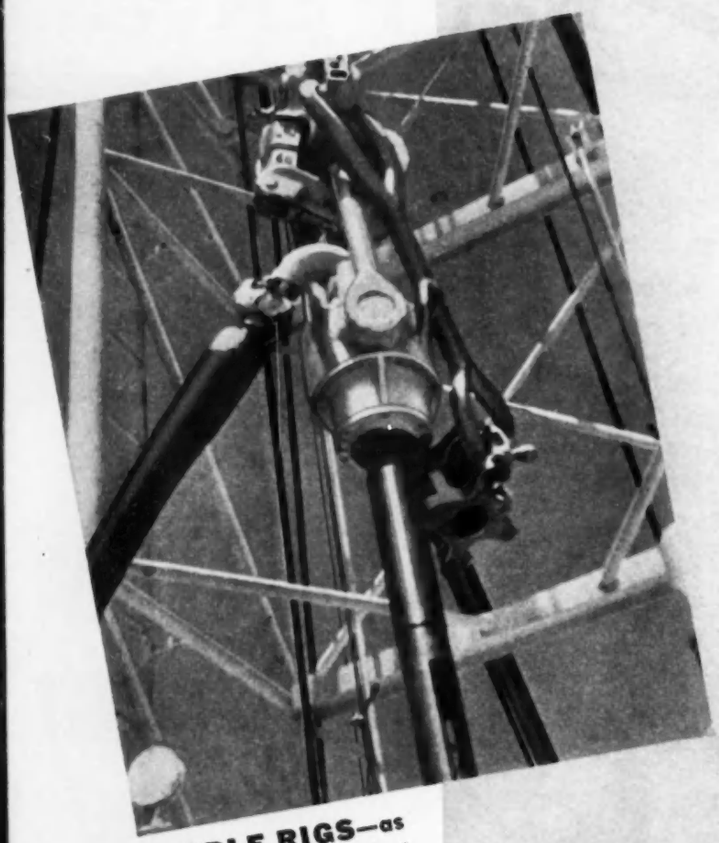

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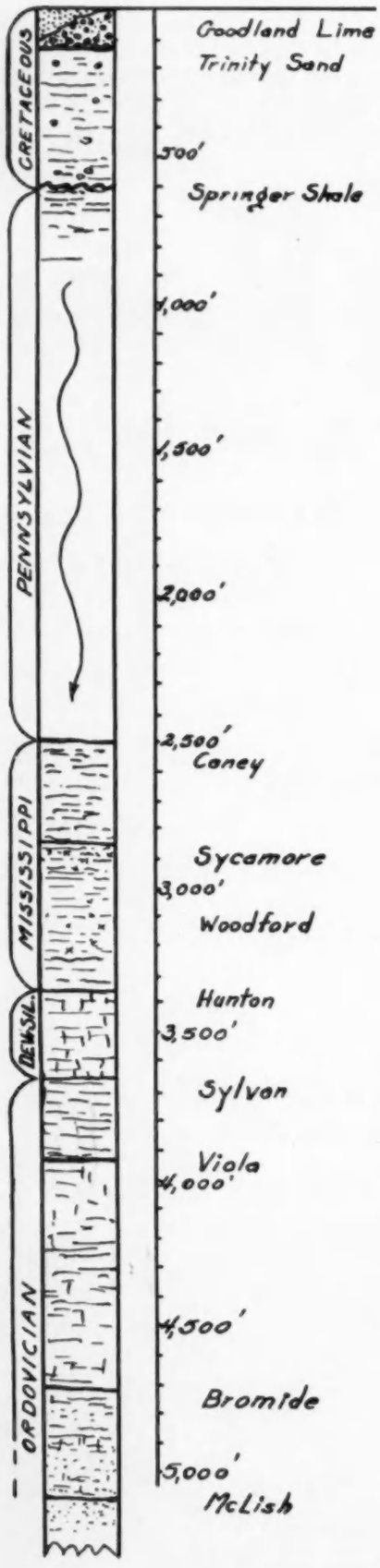

Generalized log of Cumberland field in Oklahoma.

wildcat first indicated a field, the region proved a nucleus of geologic study and lease speculation. A strong play developed that found concentration in a problematical southeast trend with the discovery as a fulcrum. A 50-mile stretch was examined to the banks of Red River.

With successful completion of the opener, new stakes were driven for orderly development of the property. At the end of the first week in October four wells had been completed, all in Bromide, and eight were drilling, some of them nearing completion. Only in one direction, the east, has the producing limit of the anticline been ascertained. Park College 200-1 found both oil and water in the pay and moved out rotary tools to complete with a cable string. This well is in section 27 and is a half mile southeast, east of the opener.

The Field at Present

Development has centered Cumberland field in Section 28 with the producing area divided unequally by Washita River, the county line. Drilling sites have been located along the structural axis, which roughly parallels the river. Terrain is rough with thick wooded sections and sand banks in the bottoms. The river presents a problem for it is tricky with sand and high stages and has no highway bridge within the field. One is contemplated and site picked pending highway construction.

While formation pressure was not determined in the discovery and subsequent wells, a check-back would place it about 2200 pounds. However, a normal hydrostatic pressure would be 1950 pounds. This would point to a slightly abnormal formation pressure, a condition not uncommon in areas of sharp folding and compression, but infrequently found at these relatively moderate depths.

A normal, steady development for the field may be expected. The company has one rig in the field, this being a steam unit. All other operations are contract. A 20-acre spacing rule has been placed in effect and this will be followed throughout development.

Above the Bromide section are three prospective pays of importance: Sycamore, Viola and Hunton. A fault exists northeast of the field and while it may have no direct bearing on productivity, there could exist parallel faults that could control accumulation.

The Pure Oil Company constructed 11 miles of all-weather roads over the field. These are being extended as needed. In addition to the roads a foot bridge has been suspended over Washita River to make east-side operations within reasonable trip-time from the camp and office west of the river.

Of the eight rigs running one is being operated by the company and is a steam unit equipped with a modern development, the constant and automatic device to control the weight on the bit. Straight electric, Diesel-electric and internal combustion rigs are also running. One cable tool unit is being used on Park College 200-1 to complete. All others have been completed with rotary. As wells are completed, derricks are moved to new location.

A standard foundation for a drilling rig is a heavy, inter-connected timber mat; and one rig is using special steel mud tanks.

Rock bits are used from the surface down for the majority of formations are hard, although not excessively so. About 60 bits are used per well to an average total depth of 5100 feet. Drilling time has been decreased to about 55 days. In some chert 20 feet of new hole

Provision has been made for high water by supporting this separator 31 feet above ground level.

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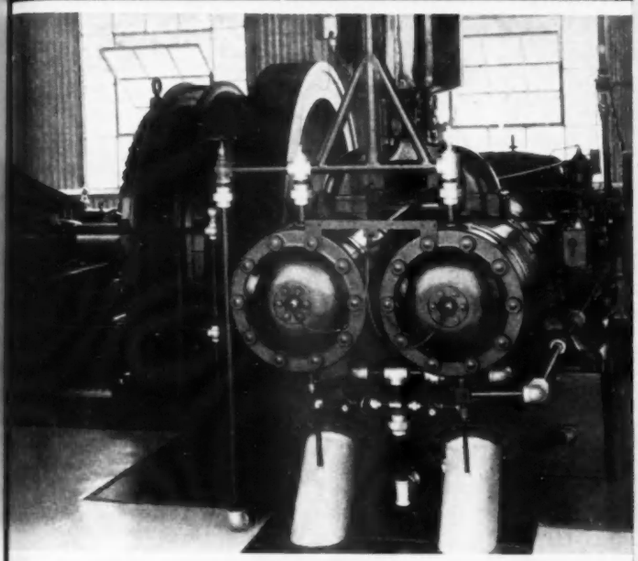
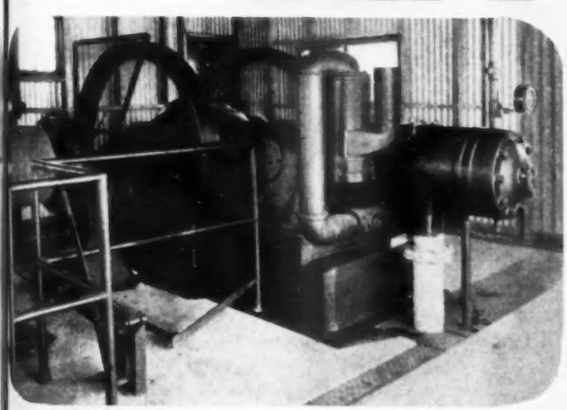
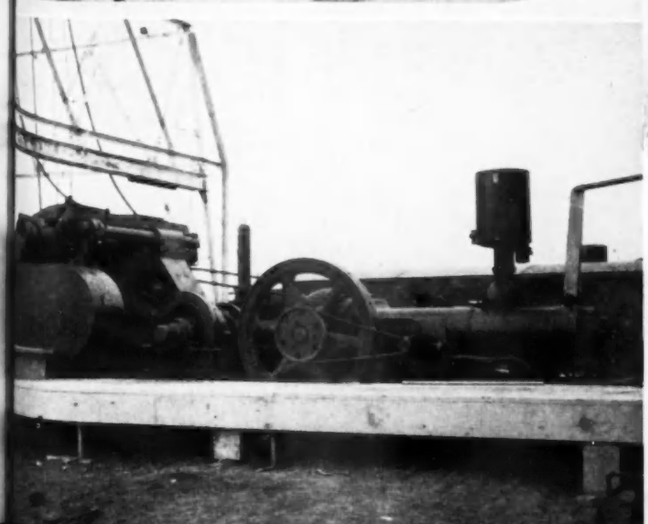
OIL AND GAS ENGINES







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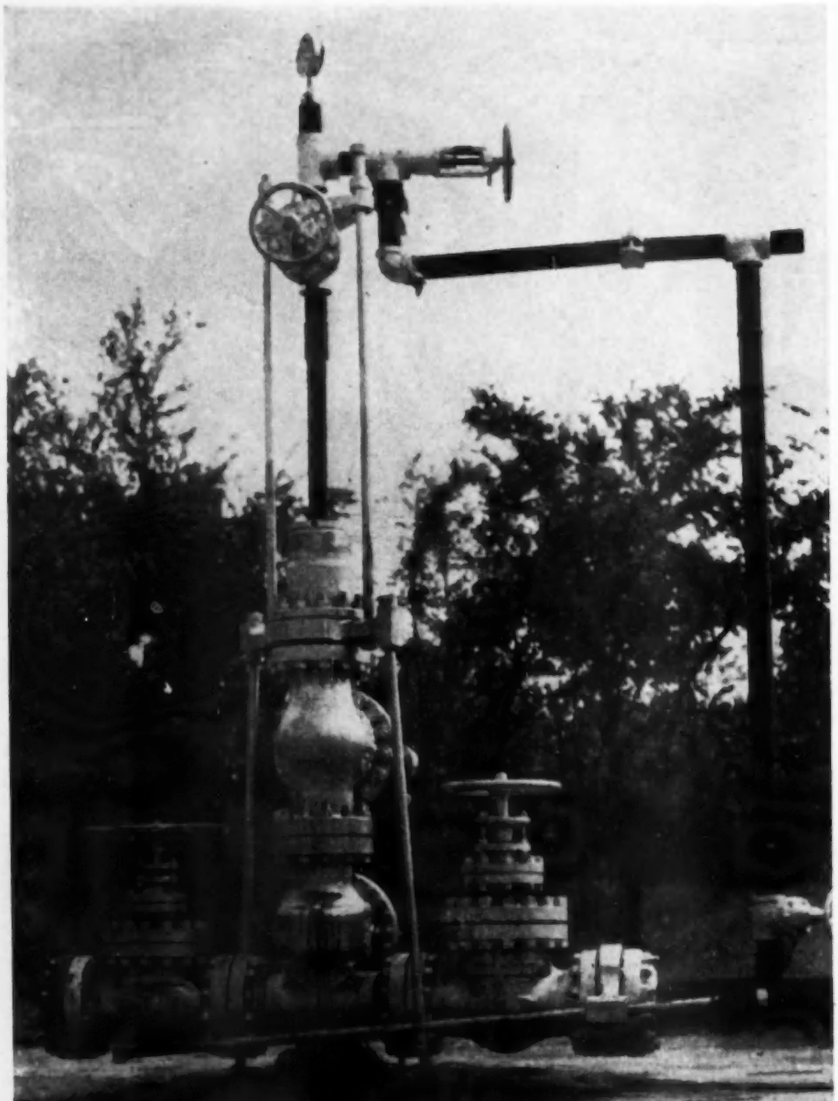
SERVING THE OIL AND GAS INDUSTRIES



Trees are all of high-pressure equipment. At Stewart 103-1, 5000-pound test fittings are used.

makes a fair day, the overall average being around 90 feet per day.

There is no particular difficulty in making hole. Although Trinity sand carries water at shallow depth, it has not caused trouble. Pennsylvanian is topped about 600 feet and drilled to 800 feet where 10¾-inch, 40½-pound casing is landed and cemented to the top with 550 sacks. High-pressure gas in Sycamore (Mayes) at 2900 feet is the first danger zone. One hole flowed mud to the fourble board while drilling through Sycamore but operators built up the mud to 11.5 pounds and drilled the zone without further trouble. Both this strata and Woodford shale just below are hard and cherty. Viola lime is somewhat hard and is slightly dolomitic. Some mud has been lost below 4000 feet and cottonseed hulls or fibrous matter had prevented serious circulation loss. Viola lime is the chief trouble maker in this respect, and from the rough cutting as indicated by the kelly, it would appear that crevices are present.

A 7-inch oil string is set to complete on top of the oil pay. Three hundred sacks of cement are used behind the 7-inch, this cement being energized with raio-active material so that its occupied height can instrumentally be determined. A special, single bail elevator is used while running this batch of cement, and while it is being pumped down the 7-inch is rotated as a precaution against channeling. This is a practice new in this part of the Mid-Continent.

To complete, the mud above the sand is displaced with water and the formation pressure cleans the face of the pay. Much depends here upon the individual well and pressures encountered. Tubing is 2½-inch, 6½-pound, with variable choke at the surface. All production is flowing from the following three completions, the discovery test being previously mentioned:

Well	Initial	Choke	Depth
101-1	836	20/64	5087
103-1	597	15/64	5090
102-1	810	9/64	5091

A short, 5000-pound test, wellhead tree has been standardized which has a pack-off flange between tubing and casing so that the tubing can be moved without the necessity of killing the well. Separators are 5 x 16 feet, low pressure, located near the batteries and working under 125 pounds. Lease storage is constructed as required, and in some instances flood markers have required substructures for elevation above high river stage.

General

Oil from the field is 37 A.P.I., corrected; is dark green and paraffin base. A field transportation system has been constructed to run production into two 55,000-barrel storage tanks. Stanolind Pipe Line Company then picks it up and transports it to its Aylesworth terminal through a 4-inch line.

A camp is being completed west of the river with ten 5-room and one 6-room house going up. Wall materials for the houses are sectional, for speedy construction, although well insulated. Water, gas and sewerage systems have been put in. Camp streets will be oiled and will have concrete guttering and curb, parking and concrete sidewalks. A completely equipped boarding house is now being operated. A combination warehouse and office, and repair shop complete the camp. Road building machinery is kept on the lease for new construction and upkeep.

The discovery of Cumberland has again awakened interest in Southern Oklahoma after it lagged through failure of many wildcats. Various survey crews have been working the area since the field was brought in, tracing and mapping new possibilities. Structures previously tested are being reexamined, for, in an area of geologic complexities, a single dry hole does not necessarily condemn an otherwise favorable condition.

Metallurgy and Design Lead

Progress in Drill Pipe Assembly Equipment

THE search for deeper production and faster drilling speeds pyramid the service load on drill pipe, tool joints and collars, through which must be transmitted the torque from a super-powered rotary table to a highly engineered cutting tool on bottom. Due to the increased mud demand as the hole goes progressively deeper, the water course through the pipe cannot be constricted and thus permit the addition of interior metal to strengthen the unit. On the other hand, there is a constant drive to enlarge the diameter of the free opening within pipe and tool joints, to permit greater volume of circulation without sustaining proportionately higher fluid friction loads.

Use of larger O.D. drill pipe with its consequently augmented columnar strength and more effective torque transmittal per pound of steel is possible only through corresponding extension of hole diameter; introducing a concomitant jump in per-foot costs vastly out of proportion to the advantages gained.

Present and future demands on the transmission units in the actual drilling machinery — kelly, pipe, joints and drill collars—can be met and anticipated only by further refinement in methods of manufacture, employment of more effective materials as they are developed by the steel mills, and the design of units which will perform a job of stepped-up intensity with in predetermined and rigidly circumscribed space limits.

In the manufacture of drill pipe itself there has been a series of gradual changes in the physical properties of the center or "shank" of the length of pipe. The methods of making have been refined to insure maintenance of uniform wall thickness, unvarying grain structure around the circumference of the tube, closer adherence to I.D. and O.D. dimensions throughout, and the specification of materials having higher resistance to drilling stresses; all these factors combining to produce a unit resisting localization of stress and in every way better suited to the severe demands made upon it.

Composite Equipment Review—III

DRILL pipe, tool joints and collars have had to shoulder a big part of the increased burden that has been imposed on drilling equipment in recent years by greater drilling depths. The accompanying discussion traces the development that has been made in the design and construction of these items and includes brief descriptions of manufacturers' current offerings. The article is the third of a series being developed by THE OIL WEEKLY dealing with trends in the design, construction, application and maintenance of important classifications of oil-field and pipe-line equipment.

Previous articles, on Spudders and Boilers, appeared in our issues of April 29 and August 19, 1940, respectively.

Ends of Pipe Altered

Almost without exception the newer types of tool joints require more or less extensive change in the shape of the ends of the pipe upon which the joint is to be made up or welded. This upset is imposed on the pipe after the length has been brought to true diameter and wall thickness, and may be considered as an additional operation apart from the actual fabricating of the pipe itself.

Form and location of this upset section depends upon the displacement of metal to afford surface upon which to cut the type of thread or make other junction incorporated in the pipe-to-joint contact. Where internal flush types of joint are used, all metal displacement in the upsetting operation must be outward, to preserve full I.D. of the pipe throughout the string in the well.

Where pipe must constantly operate through packers, as for continued drilling under pressure, the metal must be displaced inwardly, and smooth bore characteristics sacrificed to preserve an unbroken or streamlined exterior. In other types of joints, the displacement is both inward and outward, the proportion of swelling to constriction being dictated by joint design and amount of admissible choke in the mud channel or necessary clearance in the annulus between tool joint and wall of the casing or open well.

Types of Tool Joints Used

Tool joints fall naturally into five types or general classes, on the basis of diameter characteristics. They are API regular; API full hole; slim hole; internal flush; and external flush.

Each of the five types of tool joint, and the many variations introduced to provide for specialized conditions, finds application in current oil field drilling, with the first being used largely only on comparatively shallow holes, and the other four finding adaptation under some of the many composite conditions facing successful penetration to ever deeper formations.

The API regular tool joint is and has been standardized for more than a decade, and has served as a basis for the development of other types, as well as furnishing standards for thread details. Due to

the throttling effect inherent in its design, it is now but rarely employed for deep drilling operations, or where high mud pressures must be maintained to control subsurface conditions.

The present API "full-hole" tool joint was designed originally to facilitate the running of wire line core barrels, and differed basically from the original API regular by an increase in the hole diameter through the tool joint steel between the ends of the pin and box threads so as to equal approximately the hole through standard API pipe at the internal upset, and thereby permit the running of a core barrel as large as could pass through other parts of the string. The "full hole" name, chosen and given general approval through widespread use in the drilling branch of the oil industry and by manufacturers, is unfortunately selected, as the hole is far from being full at the tool joint. The constriction through couplings and that on internal upset API pipe, materially restricting cross-sectional area as compared to the pipe itself, did permit the use of a larger core barrel than could be handled through the regular joint, and throttling of the fluid was reduced. To compensate for metal removed from within the joint, its O.D. was increased to maintain desired physical characteristics.

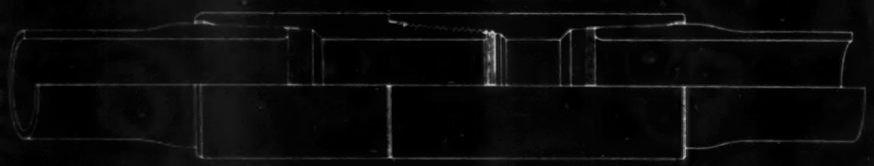
Where the size of hole limits the O.D. of the tool joint, or where serious restriction is encountered in annulus flow around the joints, the so-called "slim hole" joint has been introduced to provide both large fluid passage and relatively small tool joint O.D. Some portion of the joint strength which normally would be sacrificed under this construction is regained through the use of special steels, the added expense being offset by the gain secured through lifting restrictions to fluid flow in both descending and ascending streams. The joint requires a special drill pipe, in which internal and external upset ends must be proportioned to the type of joint being attached.

Flush Types of Joints

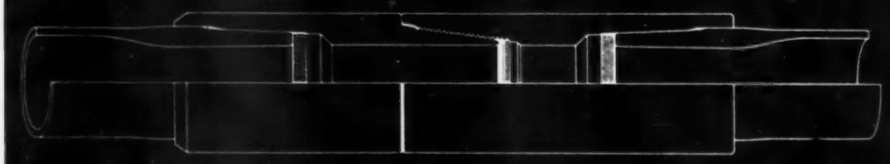
Originated before the so-called "full hole" type of joint, internal flush drill pipe was introduced to permit existing pumping equipment to cope with the mud demands of deeper drilling. The re-

Principal Types of Drill Pipe And Tool Joint Connections

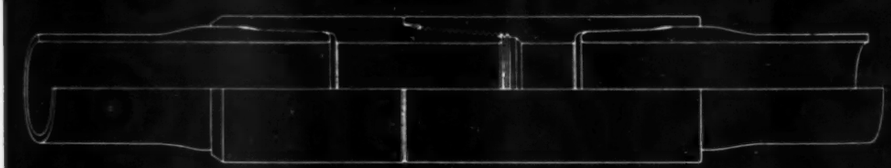
A.P.I. internal upset drill pipe with A.P.I. full hole welded tool joint



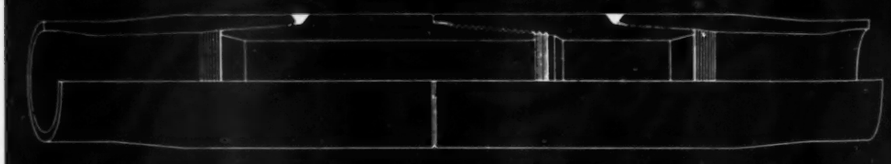
External upset drill pipe with internal flush tool joint



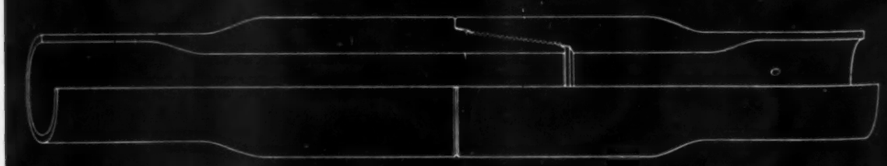
Special A.P.I. internal upset drill pipe with shrink grip tool joint



External upset drill pipe with shrink grip internal flush tool joint



Drill pipe with double streamline tool joint



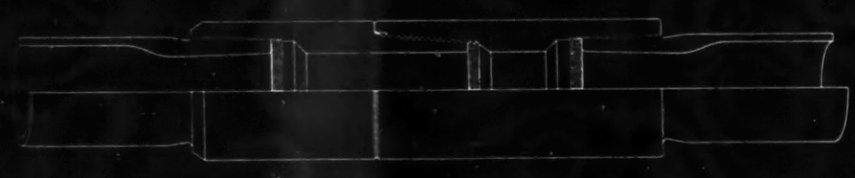
Internal and external upset drill pipe with unitized tool joint

External upset drill pipe with internal flush unitized tool joint

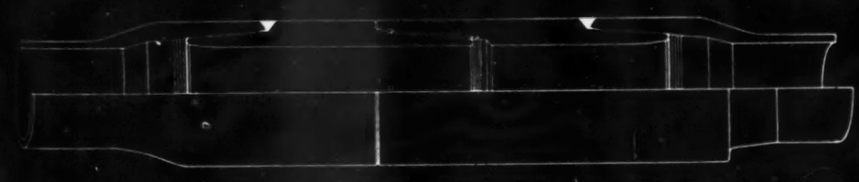
Internal upset drill pipe with counterbore weld tool joint

Internal upset drill pipe with external flush two-step tool joint

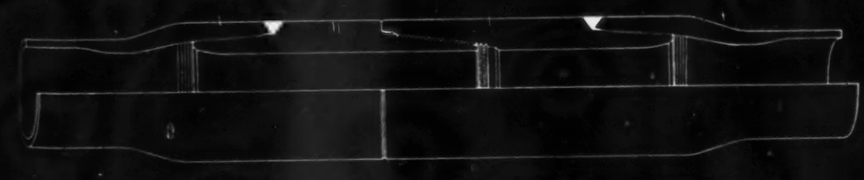
External upset drill pipe with internal flush two-step tool joint



Internal upset drill pipe with undercut thread tool joint



External upset drill pipe with internal flush welded tool joint



Internal and external upset drill pipe with A.P.I. full hole welded tool joint

Courtesy National Tube Company

duction in friction head imposed on the slush pump enabled it to maintain desired volumes in the then deepest holes being made. The smooth interior of this string greatly facilitated the running of core barrels and other "inside-the-pipe" tools. Special external upset pipe and a greater expansion to the joint O.D. were required to accommodate this design and maintain desired strength.

The internal flush joint introduces aggravated abrasion between joint outer surface and the walls of the hole, especially in wells being drilled with high percentages of open hole. Also, when coring or drilling in hard formations, the relatively slow motion of the string downward into the hole permits the turbulence of the returning mud stream to eddy at what amounts to fixed points over considerable periods, resulting in break-down of the mud cake, washing of the formation, and in certain strata a tendency to cavitation.

Where a relatively large hole diameter is being carried, and the cross-sectional area of annulus between joint and wall is much greater than that of the watercourse in the string, proper protection of the joint surfaces against the wear set up by whipping of the string enables the internal flush type of joint to be used and its advantages to be realized most fully.

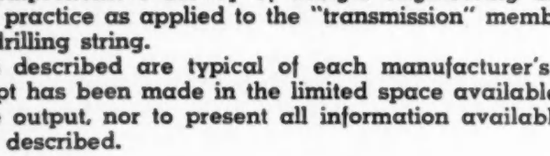
Where drilling must be carried on against high pressures in the hole, as is necessary when prolific high-pressure gas sands must be traversed, it is desirable that the string be run through packers and high pressures maintained against the formation. For this type of drilling, the external flush type of joint is used frequently. Presenting a smooth, unbroken exterior, the string may be handled through packers, blowout preventers and other sealing devices without difficulty and without unduly imposing excessive strain to accommodate variations in string diameters. The external flush type of string is open to the objection that it cannot readily be provided with any type of protector against wall abrasion, and must be handled into and out of the hole with special equipment such as elevator plugs. The time into and out of the hole is thus extended by the time required to

Trends . . . DRILL PIPE—TOOL JOINTS

PRESENT trend of development in drill stem components to keep pace with augmented drilling demands is outlined by the following brief reviews of drill pipe, tool joints and drill collars as shown in recent changes announced by manufacturers.

These descriptions brief one item of each manufacturer's line, indicating improvements over previous practice, and together present a comprehensive survey of design, engineering and manufacturing practice as applied to the "transmission" members of the modern drilling string.

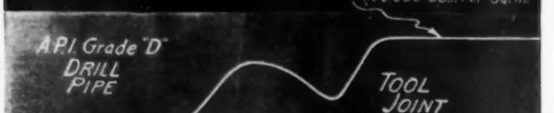
Units described are typical of each manufacturer's line, but no attempt has been made in the limited space available to cover his entire output, nor to present all information available on any one unit described.



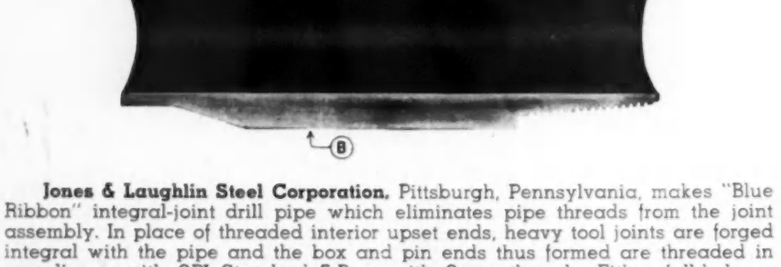
Hughes Tool Company, Houston, Texas, developed the Hughes Flash-Weld Tool Joints to provide an integral tool joint and drill pipe assembly wherein members consist of materials best suited to each.

Above: An enlarged view of etched section shown below. The superimposed curve illustrates variation in tensile strength as determined from representative sample. At all points strength of weld surpasses that of pipe.

(A) Cross section of weld etched with acid to develop heat-affected zone and junction between pipe and tool joint. (B) Polished but unetched cross section of weld area.



Jones & Laughlin Steel Corporation, Pittsburgh, Pennsylvania, makes "Blue Ribbon" integral-joint drill pipe which eliminates pipe threads from the joint assembly. In place of threaded interior upset ends, heavy tool joints are forged integral with the pipe and the box and pin ends thus formed are threaded in compliance with API Standard 7-B or with Acme threads. Either full-hole or flush-hole patterns are forged. In order to provide maximum resistance to elevator wear, mud wash, and abrasion in the hole, the shoulder area of the forged integral joint is surface hardened to a Brinell of approximately 475.



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make up and break out these attachments.

Method of Joint Attachment

Although hole conditions largely influence the diameter and type of joint to be used, selection of the thread form and method of attachment of pipe and joint is more or less arbitrary.

Three general types of contact between pipe and joint are utilized, in which (1) some type of shoulder is relied upon to provide adequate strength and seal; (2) reinforcing contact between the joint and pipe is secured through shrinking the joint onto the pipe or "wringing" two closely mated tapers; and (3) welding.

The type of joint-to-pipe connection in which the final point of contact is also the last thread on the half of the joint relies solely on the material of the upset pipe within the helix of the bottom of the thread, and although perhaps the easiest to make up, lacks both torsional and flexing resistance, and is the factor behind most of the breaks classed as "last engaged thread" failures.

One type of joint, its design influenced by the effort to eliminate last-thread failures, provides ample metal in the pipe upset to permit a slight undercutting at the end of the threaded section. This undercut, without abrupt change of section, merges gradually with a reverse curve tangent to the pipe wall, and provides distribution of stresses at the joint over a wide band, at the same time preventing the localizing of stresses present when a sharp change in section or unrelieved profile is encountered.

Certain types of both external and internal flush joints have the joint thread cut directly into the upset pipe ends, with a double pin joint providing two breaking and engaging surfaces for making up and racking drill pipe. These types of tool joint threads shoulder and seal at both ends of the two-step thread as the thread makes tight. These seats are angular to afford an increase in load bearing capacity in addition to the normal strength of the special thread engagement. This strictly tool joint engagement is also true of certain types of welded tool joints, in which the only bearing surface which can possibly be affected by drilling stresses is the broad face

of the engaging shoulders of the joint.

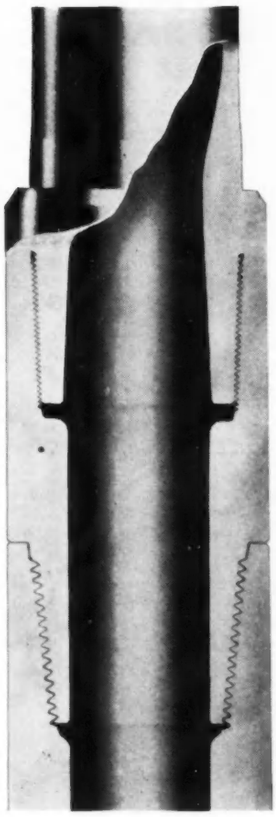
Even when bucked on under controlled torque, unless the design of the joint presents some type of positive seal, eventual leakage of the high-pressure mud may occur, resulting in a "washout" or damage to threads through jetting action of the fluid.

To provide this positive seal, and also to carry the reinforcing action of metal-to-metal contact well past the point of last engaged thread, two types of shrink joint have been developed. Of these, one involves the use of a special thread, so designed that the roots and crests of the mating modified Acme-type threads contact, while leaving minute clearance at the sides of the thread. A curved seal at the small end of the pipe engages a tapered face within the tool joint and extends bearing surfaces as well as affording liquid seal. This joint is applied in the shop or field, simply by heating the tool joint to a point well below its heat-treating critical temperature and then running the joint onto the pipe, without bucking up. When the joint cools, normal shrinkage of the heated joint provides positive engagement between roots and crests of the threads and yet permits removal and replacement of the joint in the field if necessary, simply by cutting the tool joint shell longitudinally almost down to the threads, the expansion induced by the cutting torch sufficing to free the close contact and permit wedging and tonging the worn joint from the pipe. If thread dressing is required, it is usually slight, and can be accomplished by a field operation, after which a new joint is heated and shrunk in place and the pipe is again ready for service.

The shrink grip connection between tool joint and drill pipe differs from other similar constructions in that two separate and distinctly different processes are used in the assembly of this type of connection. The shrink grip tool joint carries the standard API drill pipe threading. The support afforded the drill pipe by the tool joint against last engaged thread failure in the drill pipe, and the seal-off preventing thread leakage, are brought about by having an extra long accurately machined tool joint recess shrunk onto a machined seat on the drill pipe.

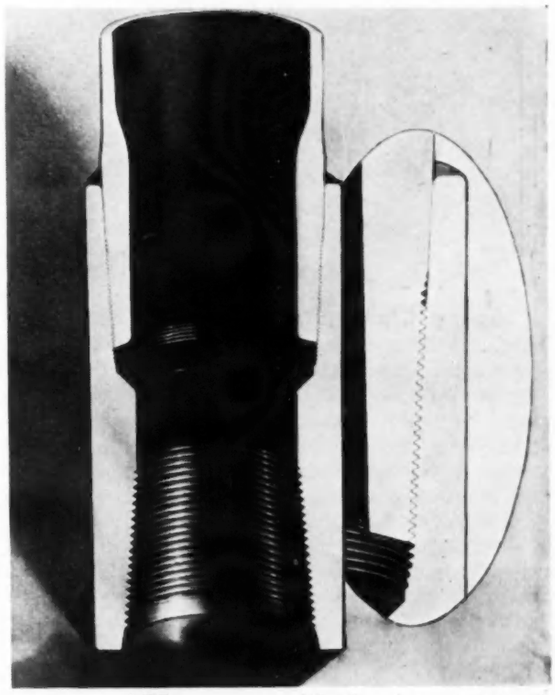
When the tool joint is attached to the drill pipe the end of the joint

DRILL PIPE AND TOOL JOINTS–(Cont'd)



Reed Roller Bit Company, Houston, Texas, manufactures its Shrink-Grip tool joint from alloy steel, machining it under multiple inspection to close tolerances, and heat-treating in electric furnaces. The shrink-grip is an exclusive feature wherein an extra long recess on the box end of the tool joint connection is machined to a smaller diameter than the external upset of the drill pipe. The recessed end of the joint is expanded by heating and screwed onto the threads hand tight. As the recessed end of the joint cools it shrinks in diameter, causing it to grip the drill pipe and give added support and seal. The Shrink-Grip joint can be replaced in the field wherever usual shop facilities are available.

Pittsburgh Steel Company, Pittsburgh, Pennsylvania, has developed the Pittsburgh Special Drill Pipe which is threaded to A.P.I. standards and specifications and is interchangeable with A.P.I. drill pipe. The pipe incorporates a plain machined area beyond the last scratch of the threads. This machined area is finished to the same taper as the threaded section and mates with the counterbore of the tool joint, also machined in the same way. In bucking on the tool joint the two plain sections are drawn tight along the threads. This extension provides a 35 percent strengthening of the engaged sections and greatly reduces or eliminates the weaving or vibration stresses otherwise imposed on the threads. The addition of the long tapered contact between machined surfaces provides additional seal comparable to a valve seat seal off. Pipe joints of this type may be field assembled in any first-class shop with adequate tools.



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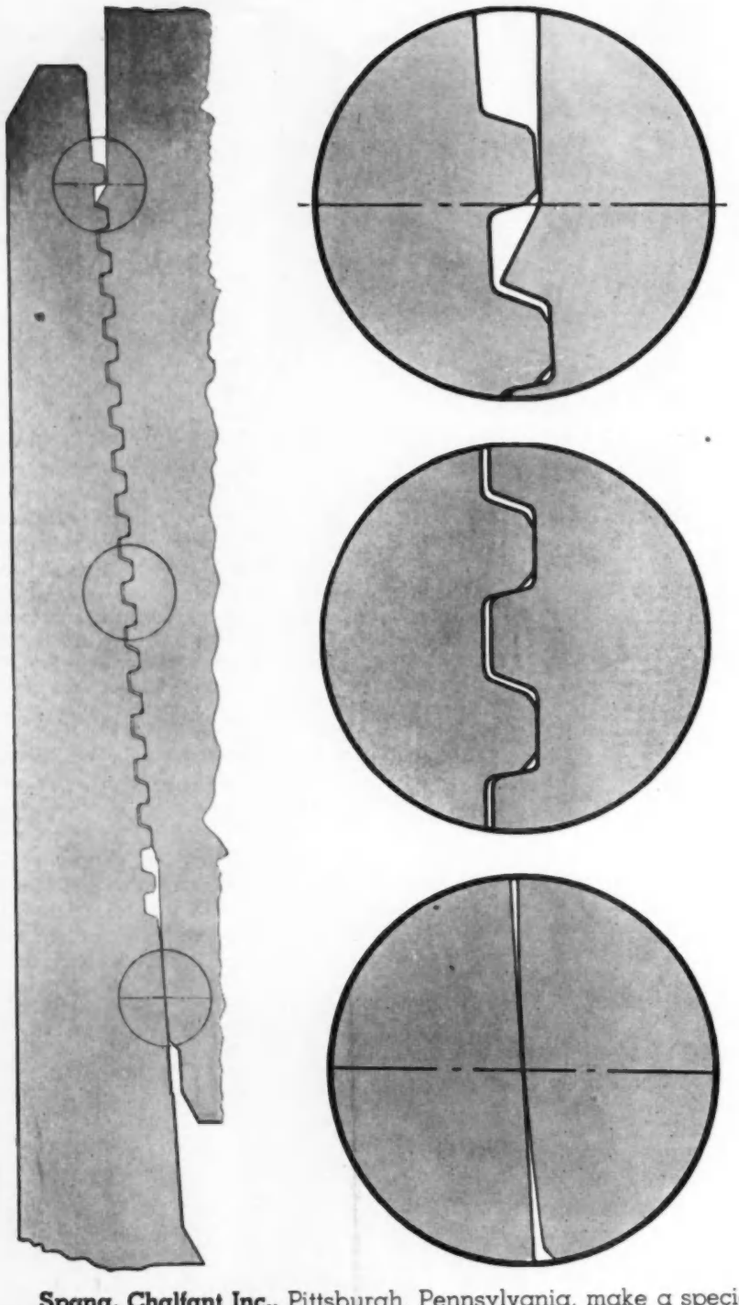
DRILL PIPE AND TOOL JOINTS—(Cont'd)



Spang, Chalfant Inc., Pittsburgh, Pennsylvania, make a special Shrink-Thread drill-pipe-to-tool-joint connection using a modified Acme-type thread designed for strength, and to provide the joint with leak-resisting qualities. Threads are formed to provide clearances between the thread flanks, and avoid wedging action, the engagement being between wide faces and parallel surfaces. The joint is applied in the shop or field, simply by heating the box end, which, upon cooling, contracts and provides adequate liquid seal as well as additional reinforcement by the grip set up on the pipe by the contracting joint. The seal is provided at the inner or fluid side of the joint, protecting the threads from abrasives carried by the drilling mud. The drill pipe is made to fit standard types of internal flush, external flush and combination types of assemblies. Special pipe for tool joint manufacturers' specialties also is included in the line.

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is heated to expand it onto the drill pipe landing seat of larger diameter than the inside diameter of the tool joint recess. Cooling brings about the shrinkage of the joint, causing a tight grip onto the drill pipe. These two surfaces shrunk together are cylindrical. The amount of shrink grip on the machined land of the drill pipe is predetermined. Tightness of the tapered threading is controlled by the gauged torque of the bucking-on machine.

Assured alignment of tool joint and drill pipe is accomplished through completion of both land and threaded portion in one single chucking of tool joint and of the drill pipe.

The same effect of long surface bearing is secured by another adaptation of tapers where the thread is lubricated before making up joint and pipe, the two tapers remaining bare and being made up so tightly that a surface welding or "wringing" of the metals of the two surfaces takes place, adding much to the stiffness of the joint and forming liquid seal as well. In replacing worn joints with this last type of junction, it is usually necessary to dress the surface on the pipe before mating with a new taper within the replacement joint.

Welding as Joint Factor

The operator's troubles with "washouts," "last engaged thread" failures, tendency of joint and pipe to work apart at their junction instead of breaking in the joint when coming out of the hole, all these have led to the adoption of welding as a means of insuring union between pipe and joint. This welding starts with a bead run around the pipe at the end of the joint, and effective largely as a liquid seal so long as unbroken by vibration and gyration of the string. Next better in strengthening effect is the bead which entirely fills the angle between joint and pipe, eliminating the sudden change of cross-section at this point, and making for gradual transference of stresses from pipe to joint. On streamline pipe and some types of flush-joint constructions, this welding bead is designed to fill the Vee purposely left between adjacent raised lands, and thus provide a continuous surface.

A recently developed and perfected welding technique permits the welding of tool joints directly to upset ends of the drill pipe, eliminating the threading of pipe

at the mill, and placing but one threaded joining between lengths of pipe instead of the customary three. This type of attachment, while not replacable in the field due to lack of specialized equipment suited to handle the work of aligning and making the weld, is increasing in use, due to the fact that it makes possible the permanent joining of special alloy steel tool joints and pipe fabricated to withstand bending and shock stresses. The electric type of weld employs an adaptation of standard heavy-duty welding machinery, in which the joint and pipe end are aligned by previously checked clamps and then welded under pressure after the abutting surfaces have been brought to the proper temperature. Use of paired transformers and dual heating currents equalizes heating of the junction and reduces time in the welding machine.

Following the welding of joint to pipe, the slug of welded material in the interior is sheared off with a follower, and both inside and exterior machined to nominal dimensions. Check of such welded joints by means of specially equipped instruments screwed to the joints at the ends shows that the control of alignment obtained by this method gives results well within the A.P.I. limit for angularity.

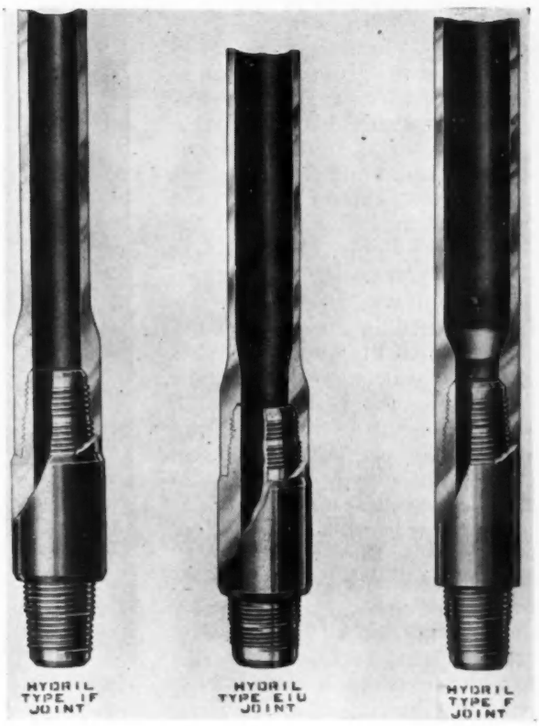
Pressure welding, in which the joint and pipe end are autogenously heated, also finds application in the elimination of threaded contacts in the drill stem. By means of thormostatic control of furnace temperatures and regulation of bulldozer pressures, welds are produced regularly showing physical characteristics amply high to insure soundness of the junction and localize failure—if any—in the shank of the pipe itself.

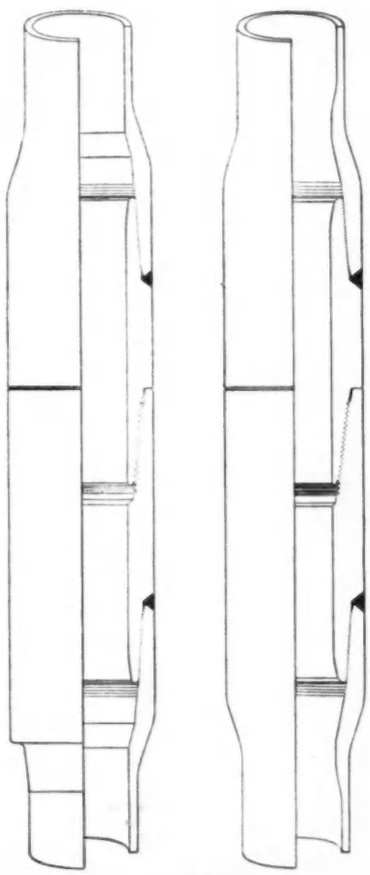
Functions of Tool Joint Thread

Torque transmission is the principal load imposed upon the threads within the tool joint itself, after the halves of the joint have been immovably fixed to pipe ends. Made with a wide taper to facilitate engagement, and permit distribution of the shock occasioned when a stand is dropped onto the joint in the rotary slips, the form of the threaded section in itself sets up a tremendous disrupting strain on the box half of the joint. This wedging or splitting action tends to rive the box when sudden stop-

DRILL PIPE AND TOOL JOINTS–(Cont'd)

The Hydril Company, Los Angeles, California, eliminates the conventional drill pipe thread with special upset pipe in which is cut the special Hydril tool joint thread. Double pin tool joints are used, which permits reversing the string for dividing slip wear on pipe and make-up and break-out service of joint. By breaking at the upper pin on the last trip out of a well, the string is automatically reversed for use in the next well drilled. A double pressure seal is attained with positive, interlocking shoulder seals at pipe and joint, maintaining positive closure under severe bending stresses. These shoulder seats are designed to transmit torque and reinforce the box section of the joint against spreading or welding action. A smooth contoured, 18-degree elevator shoulder is provided, replacing the conventional square shoulder, eliminating the sudden change in section with consequent stress localization. Pipe and joints are made internal flush, external flush and external - internal upset designs, in all standard sizes of drill pipe.





National Tube Company, Pittsburgh, Pennsylvania, furnishes drill pipe in all sizes and to accommodate all types of standardized tool joints in A.P.I. grades. It also has available a new grade of drill pipe made from steel of higher tensile strength than Grade D. In addition to the various types of drill pipe furnished with tool joints of various manufacturers, the company produces exclusively an external upset drill pipe with internal flush-welded tool joint, and an internal and external upset drill pipe with A.P.I. full-hole welded tool joint, both these tool joint assemblies being made up at the mill and the pipe shipped with tool joints shop-welded to the pipe. These designs include alloy steel pipe, heat-treated box and pins, and welds made under factory supervision.

Illustrated at left: National external upset drill pipe with internal flush welded tool joint. At right: National internal and external upset drill pipe with A.P.I. full-hole welded tool joint.

page of the bit multiplies the torque load many times.

If the threads have pulled tight before complete contact of the abutting shoulders on the joint has occurred, further wedging is inevitable as the joint attempts to make-up further under drilling torque. To prevent this action, several manufacturers have introduced changes in pin and box section, thread tapers, thread forms and shoulder outlines, and through one or more of these factors have sought to improve the strength of the joint contact.

Widely used is the beveled pin shoulder which fits over and abuts on a similarly faced section on the box, whereby the bevel serves to reinforce the box to the extent of the torsional component carried by the interlocking surfaces. At least one manufacturer provides double bevels to obtain this effect at both ends of the joint.

Initial torque transmitting characteristics of a tool joint, relying upon accurate fit of interrelated parts, become less with wear, abuse, and expansion of the box, eventually resulting in breakdown or failure.

Thread galling, incident to making up and breaking out joints in the field, has been reduced markedly during the recent years as a result of careful study of the factors involved. Tool joint steels have been improved and heat-treatment methods standardized to minimize any distortion or deviation from roundness or accuracy as machined into the joint. These factors also add much to thread life by distributing shock and wear over the contours as designed and made into the joints. Careful inspection of joints, not only between operations but after final heat treatment, coupled with improved methods of dressing out minor variations in thread face or outline, insures delivery of joints mating much more accurately than was previously considered possible —or necessary. Use of the latest zinc-and-lead-base lubricants on properly-maintained threads practically eliminates galling and greatly extends useful thread life.

Prevention of Stabbing Damage

Although primarily and exclusively a field factor, stabbing damage often is laid to joint design or fabrication, and steps have been taken to eliminate this trouble by designing tool joint threads which offer heightened resistance to damage or distortion and subsequent galling.

DRILL PIPE
NORMAL AXIS OF ROTATION
POINT OF STRESS CONCENTRATION
THEORETICAL STATIC POSITION OF MISALIGNED DRILL COLLARS
POINT OF STRESS CONCENTRATION
POINT OF STRESS CONCENTRATION
THEORETICAL EFFECT OF DRILL COLLAR JOINT MISALIGNMENT

Courtesy Baash-Ross Tool Company

Foremost among the changes are the adoption of Acme threads with broader crest, a new Acme-type thread which contacts on the root and crest rather than on the sides and thus substitutes true conical contact for the longitudinal wedging action of sloping thread sides, modified Vee-type threads, and multiple-step threads. Important as these thread changes are, their true value is obtained only through assuring their maintenance as designed and machined by means of accurate heat treatment.

The welded-on tool joint, requiring shipment to the plant for replacement, has brought with it renewed care and watchfulness in the field, and as a result when running this type of pipe, derrick crews take greater pains to prevent stabbing damage than when using other types of pipe. This tendency is further advanced by careful supervision and instruction of crews and—in some instances—payment of bonuses to men establishing long runs with unblemished pipe.

Improved drilling technique has, during the past few months, brought about greater skill in maintaining open holes, and a record depth of 11,485 feet of open hole was made in 19 days on Union Oil Company's KCL 1-36 in California. Many holes are made with as high as 8000 feet of open hole as everyday operations, and drill stem, joints and collars are being designed and built to stand up under such conditions.

This change of drilling technique frequently results in a shorter service life for the joint than for the drill pipe. Flexing and nodal contact with the wall both exact toll from the joint, with the brunt of the abrasion being concentrated on the exterior of the joint. Where possible, joints in such open hole are guarded with rubber protectors set just above each joint, but where such practice is not followed, joints must be pulled and replaced because of reduction in diameter before other portions of the joint have lost effectiveness.

To compensate for this peripheral wear, one company has devised a welded-on armor or rebuilding process which enables its type of joint to be resurfaced and used until it is below par in other ways. The outer portion of the worn joint is turned down to a true cylinder, and a spiral of high-

LONGEST EXPERIENCE

in the Manufacture of Fully Heat-treated Drill Collars and Grief Stems

INCREASING drilling strains have required a corresponding improvement in the quality of drill collars and grief stems. "Oilwell" anticipated this need by pioneering the manufacture of fully heat-treated drill collars and stems in 1922. Constant improvements have since been made by "Oilwell" in all steps of the manufacture of this type (Grade "A") and also the regular heat-treated type (Grade "NA").

Close supervision and careful inspection start with the selection of controlled fine-grain, alloy-steel billets and continue through all forging, heat-treating and machining operations. Joints are accurately aligned. Bored circulation holes are straight, true, smooth. Wall thicknesses are uniform.

OILWELL" Fully Heat-Treated ILL COLLARS and RIEF STEMS STRONG, HARD d TOUGH from End to End

HEAT-TREATMENT

1. Grade "A" . . . *Fully Heat-treated (Normalized, Quenched and Drawn) over the entire length,* resulting in tool-joint strength, hardness, and toughness from end to end. This is a premium grade, providing an extra factor of safety for the most exacting requirements.

2. Grade "NA" . . . *Fully normalized body with fully heat-treated ends.* This grade is of first quality, entirely satisfactory for most operations. Collars and stems of this grade are sometimes classified as fully heat-treated.

SIZES

"Oilwell" Heat-treated Drill Collars and Upset Grief Stems are made in all regular A.P.I. sizes and also in accordance with customers' specifications in lengths up to 55 feet. Fully heat-treated subs are available for making up tandem strings. Send for new Bulletin No. 150-B.

IL WELL SUPPLY COMPANY

Branch Stores in All Oil Fields
United States Steel Corporation Subsidiary

Trends . . . DRILL COLLARS

Reed Roller Bit Company, Houston, Texas, manufactures Drill Collars in A.P.I. design, regular or full hole, or to specifications in lengths up to 40 feet.

Special heat-treating furnaces have been designed for the purpose of producing drill collars with a maximum combination of hardness and toughness; that is, combined strength and ductility.

All collars are heat treated over their full length in one operation after being forged and straightened under a 600-ton hydraulic forging press. Treatment subsequent to forging and straightening results in drill collars with uniform physical properties, free from stresses and strains. A second heat treatment, following the machining and boring operations further improves and increases the physical properties.

Concentricity is held to extremely close tolerances, and precision alignment between the axis of the threaded joints at each end assures a perfectly balanced drill collar.

Oil Well Supply Company, Dallas, Texas, manufactures drill collars in all diameters, in all lengths up to 55 feet, and in designs to suit operators' specifications. They are forged from selected quality, controlled fine-grain billets. SAE 3140 nickel-chromium steel is regularly furnished, but other fine-grain alloy or carbon steels are supplied when specified.

"Oilwell" Drill Collars are available in two grades of heat treatment. Grade "NA" Drill Collars are fully normalized (heated and air cooled) in one operation to relieve forging strains and to provide uniform physical properties and fine grain structure. The ends are then fully heat-treated (quenched and drawn) to provide tool-joint strength, hardness, and toughness at the joints.

"Oilwell" Grade "A" Drill Collars are fully heat-treated over their entire lengths. In addition to being fully normalized, each Grade "A" Drill Collar is also quenched and drawn over its entire length. These three steps result in tool-joint strength, hardness, and toughness from end to end. The bodies have the same high physical properties as the joints.

Joints and the bored hole are precision-aligned, concentric with the axis of the drill collar. Wall thicknesses are uniform, and the circulation hole is checked for straightness in accordance with API specifications.

[*Continued on next page*]

tensile, wear-resisting metal spot welded over the new surface. After being coiled on and tacked, the spiral groove remaining is completely filled and the joint refaced, making it again of original diameter and with a wearing surface equal to or surpassing the original. Turning of the worn collar is not carried deeply enough to sap the structural strength of the unit, as the original design incorporates sufficient excess metal to provide for abrading wear without impairing other qualities. The economical limit of such resurfacings is set by thread or shoulder wear.

Development of mill-fabricated doubles and perfection of a type of derrick in which unitized thribbles can be picked up and racked makes possible the elimination of from 50 to 67 percent of the joints necessary in a string, but has introduced long lengths in which whipping or horizontal displacement takes place between reinforcing and wear absorbing joints under drilling loads. Much of this wear is being successfully averted by extra long rubber protectors, and by careful manipulation of the rig so that the string shall be under sufficient tension to dampen out or minimize the tendency to whip.

Drill Collar Development

Originally introduced solely to absorb in some degree the terrific punishment transmitted by the bit to the bottom of the drill pipe string, the drill collar has progressed far from the six-foot slightly overgrown "sub" which first bore that name. Today instances are on record of numerous drill collar strings which total 240 feet in length, with one string of 360 feet being used in a California deep-well operation, with 50- or 60-foot units making up the string.

With the relatively thin-walled drill pipe serving to carry the bit directly, it was necessary to attempt to crowd the cutting action through a relatively flexible medium, and considerable pipe length was required to obtain the necessary weight. This constant flexing of the drill pipe brought added operating difficulties in the form of crooked holes, and failures of the lower end of the string were frequent. To avoid these troubles, tandem drill collars, and longer sections made by field welding comparatively short units, were used.

This change eliminated column or compressive stresses in the drill

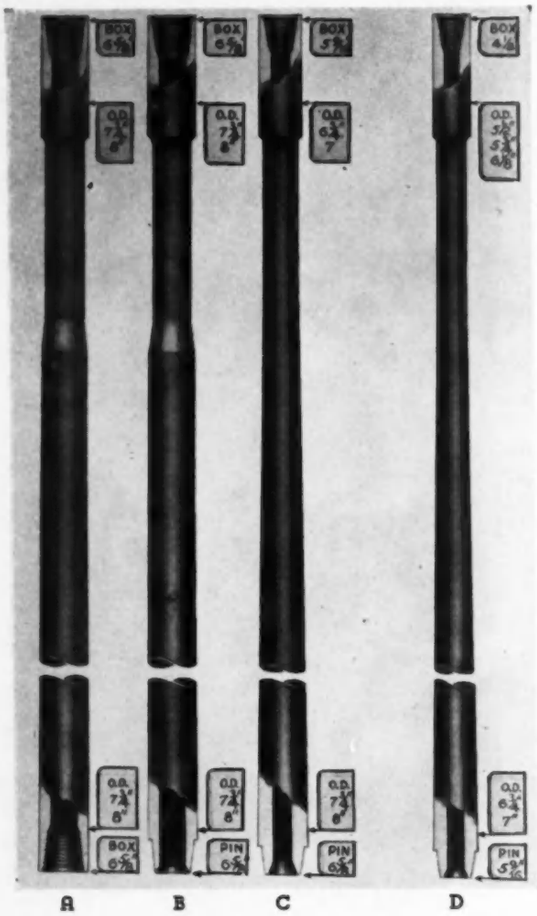
Balanced

High speed deep drilling is made practicable by **balanced** drill collars. In order to give long, safe, economical service, a drill collar must have many qualities, all present in carefully balanced proportions. The joints must be accurately aligned to avoid fatigue stress; the circulation hole must be of uniform diameter and accurately centered so that weight will be evenly distributed around the axis of rotation; the right steel must be used, and scientifically prescribed and controlled heat treatment must be employed to obtain the balance of physical properties that insures great strength, resistance to shock and fatigue, and good wearing qualities. In addition, the dependability and service of the drill collar must be in balance with the cost. You get all of these qualities in proper balance when you specify

BAASH-ROSS *Trubore* DRILL COLLARS

BAASH-ROSS TOOL COMPANY · Los Angeles · Houston · Oklahoma City · New York

DRILL COLLARS–(Cont'd)



Hughes Tool Company, Houston, Texas, forges its drill collars from alloy steel heat-treated the entire length of the collar in an "over and under" fired furnace, then quenched, full length, in circulating tanks to maintain grain structure. Collars are bored from one end only to eliminate possibility of offset in bore. Collars are then chucked true with bore for external machining operations. A.P.I. specifications rule throughout.

A "tandem string" of collars, showing transition from small drill stem to large diameter bit, is shown here. Sudden change of section is avoided by use of tapered collars, C and D, with one or more straight collars as A or B.

American Iron & Machine Works Company, Oklahoma City, Oklahoma, in 1928 began the fabrication of drill collars in 20-foot lengths, and today makes its collars up to and including 40-foot lengths, in various sizes from 4-inch O.D. to 9-inch O.D. Developed to enable the drilling contractor to drill straight holes at fast speeds, the collar is made of chrome nickel steel, fully heat-treated throughout. Following heat treatment each collar is tested for hardness and rechecked for alignment of bore and threads. All bores are tested for concentricity and alignment before being shipped. Collars may be furnished with various standard thread sizes and combinations of box and pin ends, as specified.

[*Continued on next page*]

pipe, by transferring them to the relatively stiff drill collars. This shift in stresses to the collars tended to concentrate the stresses at the joints between collars, leading to still further lengthening of the component units of a tandem string, with collars now being commercially made up to 60 feet in length.

Closely behind the adoption and understanding of advantages inherent in longer collar assemblies came the attempt to speed hole making by stepping up rotary table revolutions. This increased drilling speed, while possibly aiding in maintenance of straight-hole penetration, likewise imposed greater stresses on the already overloaded drill collars.

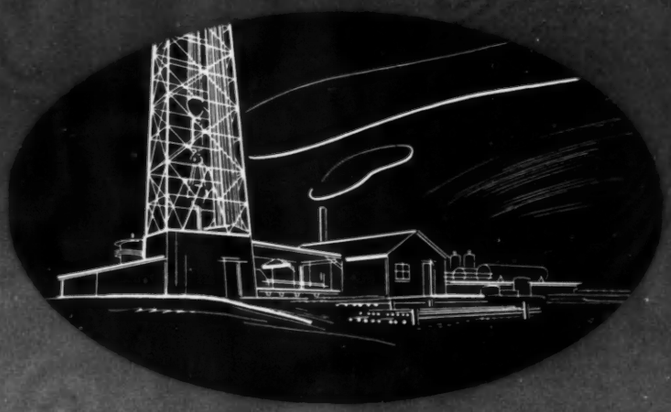
To correct the difficulties in drilling, manufacturers strove to eliminate or reduce the destructive forces set up by the rotating drilling string and to refine or improve the joints between collar sections so they would not act to amplify forces initiated up the string.

Dynamic instability and concomitant vibratory stresses being recognized as a maior contributing cause to collar failures, bore eccentricity is being closely controlled, with tolerances of 3/16-inch or less being common in 30-foot collars and that figure being but slightly exceeded in collars twice the length.

Joint alignment in the relatively stiff collar assembly is of much greater importance than in the relatively pliable pipe, as any deviation results in a whipping action and development of flexing stresses in addition to severe peripheral wear. To overcome this trouble, drill-collar manufacturers have pioneered in development of instruments to measure the misalignment of threaded ends on a long drill collar with regard to the theoretical axis. With this error detectable, improvements in thread cutting and collar treatment now enable joint alignment to be held well inside a tolerance of 1/16-inch per 10 feet of length.

Straightness of drill collars is also carefully built into each unit, and maintained not only throughout heat treatment but also during the working life of the collar. In the successful heat treatment of such long members as 60-foot collars, choice of material is second in importance only to the method

...your drill pipe threads are in perfect condition for *Field Replacement* of TOOL JOINTS



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STANDARD *Seamless*

SHRINK THREAD DRILL PIPE

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Threads remain in perfect condition because they cannot become galled or chipped—are always tight, preventing wobble, leakers and washouts.

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The pipe thread shows no wear or damage . . . is carefully cleaned ready to take a new tool-joint.

A cold unlubricated joint is pulled hand tight and an advance, hot position marked.

Tool-joint is soaked at 650° F in a portable furnace.

The heated tool-joint is applied by hand to the advanced position. Natural shrinkage does the rest.

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Write for Bulletin No. 3 for complete information.

DRILL COLLARS–(Cont'd)

Acme Fishing Tool Company. Parkersburg, West Virginia, with its "Mud Collar," introduces a new base section for the conventional drill collar string with a specially designed unit which carries the mud stream through a set of six equally spaced and inclined passages to the outside of the bit, subjecting it to a thorough washing or flushing in addition to the normal mud action secured through the passages within the bit itself. Heat-treated and hardened fluid tubes serve to carry the mud through the collar, and are replaceable in the field if mud cut or otherwise damaged. A screen contained within the body of the collar serves to deflect larger particles in the mud stream down through the bit passages, and thus prevents clogging of the relatively small tubes in the flushing portion of the collar. The mud collar is made with alloy steel subs to permit its use with any standard form of drill collar string.

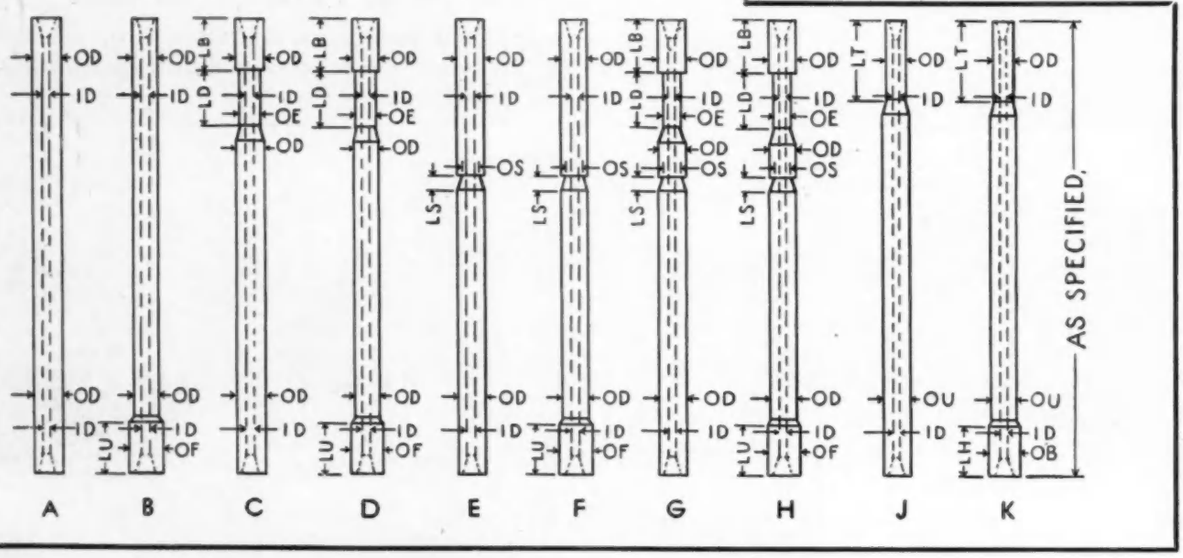
Baash-Ross Tool Company. Los Angeles, California, specializes on its "Trubore" drill collars, made and stocked as shown in the accompanying table and in the patterns shown. Overall lengths range from 30 feet on the smaller diameters to 60 feet in sizes most frequently used, and 40 feet in largest diameters offered.

Dimensional Data, Baash-Ross "Trubore" Drill Collars

(Refer to figure below for key to dimensions)

A.P.I. SIZE, In.	OD Ins.	OF Ins.	ID Ins.	LB Ins.	OE Ins.	LD Ins.	OS Ins.	LS Ins.	LT Ins.	OU Ins.	OB Ins.	LH Ins.	LU* Ins.
2⅜ Regular...	3⅛	3¼	1	14	2 1/16	24	2¾	8	36	3¾	4⅛	72	14
2⅞ Regular...	3¾	4⅛	1¼	14	2 5/16	24	3¼	8	36	4¼	4⅝	72	14
2⅞ Full Hole..	4¼	4⅝	1⅝	14	2 5/16	24	3¼	8	36	4⅝	5	72	14
3½ Regular...	4¼	4⅝	1½	14	3 1/16	30	3¾	8	36	5½†	6	72	14
3½ Full Hole..	4⅝	5	2¼	14	3 1/16	30	3¾	8	36	5¾	6¼	72	14
4½ Regular...	5½†	6	2¼	16	4 1/16	36	4¾	8	36	6¾	7¼	72	16
4½ Full Hole..	5¾	6¼	2⅞	16	4 1/16	36	4¾	8	36	7	7½	72	16
5⅛ Regular...	6¾	7¼	2¾	16	5 1/16	36	5⅞	8	36	7¾	8¼	72	16
5⅛ Full Hole..	7	7½	3½	16	5 1/16	36	5⅞	8	36	8	8½	72	16
6⅝ Regular...	7¾	8¼	3½	18	6¾	36	7	8	36	8¼	8½	72	18
6⅝ Full Hole..	8	8½	4¼	18	6¾	36	7	8	36	8¼	8½	72	18
7⅝ Regular...	8⅞	9½	....	18	7¾	36	8	8	...	....	....	....	18
8¼ Regular...	10	10½	....	20	8¾	36	9	10	...	....	....	....	20

* A.P.I. dimensions are given, dimension may be varied to 6'-0" if desired.
† Alternate 5¾ inches.



of treatment and mechanical handling during the process.

Tandem strings, incorporating one or more tapered collars between the full-size large diameter collars used for weighting and maintaining straight hole, afford a transitional area for torque stresses and prevent overloading of the last joint of drill pipe.

When running tandem strings, good practice calls for frequent breaking of the joints between component units, with thorough cleaning and redoping of the joints. Usual practice is to buck up with one wrap of jerk line for each inch of nominal diameter of the connections. This helps to insure that the joints maintain original rigidity and hydraulic seal during drilling, preventing wobbling, "washing out" and resultant thread fatigue. It is also found that picking up off bottom and rotating slowly to "feed off" the excessive weight of the collar assembly helps to keep the joints tight and maintain high effectiveness over long runs.

Correction of adverse conditions down the hole, and particularly on bottom, where clogging prevents proper action of the bit and results in suddenly pyramided drill-stem loads, is attained through proper circulation of mud and proper maintenance of the mud at maximum effectiveness. A newly introduced method of insuring thorough flushing of the bit through watercourses incorporated in the bottom joint of the drill collar stack is procured through the use of a special collar which divides the mud stream and directs it through multiple jets out and around the periphery of the hole as the bit re-

THERE IS A SPECIALLY DESIGNED

REED SPEED SAFETY ECONOMY ENDURANCE ROCK BIT

FOR EVERY FORMATION

REED ROLLER BIT COMPANY

Weight and Size Range of A.P.I. Standard Drill Collars

Size of A.P.I. Drill Pipe (inches)	Length Range of Collars (feet)	Outside Diameter of Drill Collars		Diameter of Circulation Hole		Weight per Foot of Drill Collar	
		Regular (inches)	Full-hole (inches)	Regular (inches)	Full-hole (inches)	Regular (pounds)	Full-hole (pounds)
2⅜	6, 8, 10, 14, 18, 20	3⅛	....	1¼	....	21.6	....
2⅞	6, 8, 10, 14, 18, 20	3¾	4¼	1½	1⅝	31.1	40.6
3½	6, 8, 10, 14, 18, 20	4¼	4⅝	1½	2¼	41.7	43.4
4½	6, 8, 10, 14, 18, 20	5½	5¾	2¼	2⅞	66.3	66.2
5⅝	8, 10, 14, 18, 20, 24, 28, 30	6¾	7	2¾	3½	96.2	93.3
6⅝	8, 10, 14, 18, 20, 24, 28, 30	7¾	8	3½	4¼	121.2	116.6
8⅝	8, 10, 14, 18, 20, 24, 28, 30	10	....	3½	....	196.2	....

Note—Weights are maximum weights, and approximate only.

ACME'S
MUD COLLAR
Accomplishes MORE for
Rotary Drillers Than Promised
Since announcing Acme's "Wonder Tool," experiences of users have revealed added advantages for hard and sticky formation drilling—Yes! It will do MORE than first promised or hoped.
HARD FORMATIONS: Acme's Mud Collar assures faster cutting, longer runs, better hole and less drill pipe torque. The 6 high velocity fluid streams keep the cutters clean, and instantly wash cuttings off bottom, making cutting faster and freer. They also lubricate and keep fresh cuttings out of bit bearings, increasing bearing life, resulting in fewer green bits and longer runs.
STICKY FORMATIONS: The Acme Mud Collar gives all of these same advantages in drilling sticky formations, plus the other very important service of preventing bits "balling up" and "mud rings" forming.
Order through your Supply Store, or write TODAY for full information on this "Modern Marvel Tool."
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(Patented)
The Acme Fishing Tool Co.
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Export Office: 19 Rector St., New York, N. Y.

GAS-LIFT PRINCIPLES AND PRACTICES

By S. F. SHAW, E. M.
Consulting Engineer

This book is largely based on a series of lectures on gas lift delivered before the Petroleum Engineering Department of the Agricultural and Mechanical College of Texas on November 9th and 10th, 1939, by the author as special lecturer of the Department of Petroleum Engineering.

A history of the development of the air-gas lift is given, covering operations in air and gas-lift, and noting some of the inventions that have been patented in connection with this work.

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volves, preventing the formation of balls or shoulders of mud around and directly above the bit.

Summary of present practice and manufacturing methods would seem to show further use of steels with higher physical properties than those specified in API Grade "D" drill pipe. Some drill pipe is now in use with a minimum yield point of 80,000 pounds p.s.i. and a minimum ultimate of 100,000 pounds p.s.i. Special alloy-steel drill strings are being developed, and probably will find much greater application in the deeper drilling projects, where weight reduction, increased mud-carrying capacity for given pressures, and stepped-up yield points offer advantages far outweighing the greater costs of such a string.

Further change in tool-joint thread outline, shock-resisting ability and wear characteristics may be expected from further development of the continued research in these fields, with reduction or practical immobilization of the junction between pipe and tool joint becoming increasingly more prevalent.

Horizontal Tail-Pump Easily Disconnected

THE common vertical tail-pump operating from the back end of the standard-end walking beam on a pumping well, that is used for pumping waste-water and oil from one part of the lease to another, is usually difficult to work on for the purpose of replacing parts or stuffing box rubbers, and makes it necessary to stop the well pump each time it is desired to connect or disconnect the tail-pump.

A definite improvement and advantage is gained in the horizontal installation, illustrated in the accompanying photograph, by one operator operating in a California field. Two sturdy, all-welded racks set in concrete beside the belt hall approximately 20 feet back of the crank jack-post, support the entire pump assembly. The pump barrel lies in the center, while the 2-inch inlet and outlet pipes and check valves lie on either side. U-bolts hold the assembly firmly in place, and conveniently-placed unions make for easy dismantling if necessary. A braced, vertical post with a lubricated rod guide bearing at the top permits the polished rod to travel in a straight line for minimum wear in the stuffing box.

HIGHLIGHTS IN THE WEEK'S NEWS

Washington

Expect Repeal of Excess Profits Tax Before Effective

Repeal of the new excess profits tax law even before it becomes effective with the close of the year was seen in Washington last week as a possibility, as Treasury experts attempting to write regulations for its application found the legislation cumbersome, involved and ambiguous.

So difficult has the preparation of the regulations been found that it is said to be doubtful whether they will be completed much before the end of the year, and officials and attorneys who have studied the new law have expressed the view that, if left unchanged, it may cause litigation which will occupy the courts for years.

With Congress due to resume legislative sessions November 18, the view is held in some quarters that there remains sufficient time this year for enactment of more carefully prepared legislation to supersede the act, and that, if it is not attempted this year, revision of the law will be one of the first things to come up in the next session, which meets in January.

Brown Comments on Taxes

Pointing out that at present the oil industry is subject to three general tax laws—the Internal Revenue Code which became effective in January, 1939; the first revenue act of 1940, approved June 25, and the second revenue act of 1940, including excess profits tax provisions approved October 8, Russell B. Brown, general counsel of the Independent Petroleum Association, reporting to his members on the tax situation last week, said:

"The petroleum industry has received special attention in these various tax laws. The excise taxes on petroleum imports are in the Internal Revenue Code. So is provision for the percentage method of reckoning the depletion deduction. It is so included because it is recognized that a definite percentage of the receipts from the production of crude petroleum is not income but represents a return of capital and therefore is not subject to federal taxation.

"The industry also has special recognition in the Second Revenue Act of 1940. In establishing income credits for the base years 1936-1939, inclusive, provision is made for including in the income for those years all expenditures for intangible drilling or development costs for the drilling or preparation of oil or gas wells which the taxpayer had deducted as an expense. This is important since the excess profits tax is levied upon current income in excess of the income for the base years.

"Another section of the same law makes provision for abnormalities of income during the taxable period which come under any one or more of the following classes: arising out of a claim, award, judgment or decree, or interest on any of the foregoing; or constituting an amount payable under a contract the performance of which required more than 12 months; or resulting from exploration, discovery, prospecting, research or development of tangible property, patents, formulae, or processes, or any combination of the foregoing, extending over a period of more than 12 months; or includible in gross income for the taxable year rather than for a different taxable year by reason of a change in the taxpayer's accounting period or method of accounting. All of these are important to the petroleum industry."

Tax Appeal Board Rules On Well Drilling Contracts

Contracts for drilling and completing of oil and gas wells for a stipulated price per well are "turnkey" contracts, even though the oil company for which they are drilled may furnish some of the supplies and equipment and undertake certain work, it was held last week by the United States Board of Tax Appeals.

Passing on an appeal of Retsal Drilling Company, the board held the petitioner was not entitled to deduct as intangible drilling and development costs any portion of the amounts paid to drilling contractors under agreements for the drilling of wells at fixed prices, incurred in the furnishing of some of the supplies required for drilling operations, some of the items of equipment, the swabbing in of certain wells or the furnishing of a man to supervise drilling and running the casing.

"The contracts here were not contracts for the employment of labor and the purchase of various items of material and equipment, but were contracts for the drilling and completing of oil wells."

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Allowables

Excessive Crude Production In Prospect for November

November allowables of the prorated states indicate that United States oil production during the month will be around 125,000 barrels daily in excess of current market demand for domestic crude, as estimated by the United States Bureau of Mines. That will constitute an excess of 3,750,000 barrels for the month, and such surplus will be forced into crude storage or through the refineries and into stocks of refined products.

The indicated excesses will be limited chiefly, however, to Texas and California. Kansas and Louisiana have scheduled allowable slightly in excess of estimated demand, but Kansas conceivably may find a somewhat larger market than the bureau has anticipated.

New Mexico will produce exactly in accordance with the federal agency's forecast of demand, and Arkansas will be slightly under, while Oklahoma will limit output substantially below estimated market demand.

California has retained 571,000 barrels as the state allowable, a figure 12,000 barrels under indicated demand, but during the past month actual production consistently ran 30,000 barrels above estimated demand.

Michigan in October failed by about 6000 barrels daily to supply all the crude for which it would have had a firm market, and inasmuch as oil discoveries have lagged, the state may be expected to have a similar experience in November.

Without benefit of proration, Illinois has continued on the skids, and if production should continue about the same in November as in October, which is doubtful, the state still would fail by 35 000 barrels daily to supply the markets open to it.

Texas has started the month with an allowable 139,000 barrels in excess of demand, and the allowable increases gradually as new wells are completed. Consequently, the daily average allowable for the month will be somewhat higher than the 1,430,257 barrels permitted as of November 1.

Altogether, these circumstances indicate that if the prescribed allowables stand unchanged, national production will average close to 3,700,000 barrels daily in November, which would exceed current demand about 125,000 barrels daily, and constitute the largest output since last June.

The likely November production of 3,700,000 barrels daily would be 175,000 barrels more than the average of 3,525,000 barrels that would be necessary for the whole fall and winter period if only enough crude were produced to maintain refinery runs at the rate that would result in the economically desirable

November Allowables Indicate That Crude Production Will Substantially Exceed Market Demand

(Barrels Daily)

STATE	Bureau of Mines Estimate of Demand	State Allowable Beginning of Month	Difference of Allowable from Demand	Percent Difference of Allowable from Demand
Arkansas	71,000	69,508	— 1,492	— 2.1
California	583,000	571,000[1]	— 12,000	— 2.1
Kansas	186,000	190,000	+ 4,000	+ 2.1
Louisiana	274,000	279,973	+ 5,973	+ 2.1
Michigan	51,000	48,000[2]	— 3,000	— 5.9
New Mexico	104,000	104,000	.....	.....
Oklahoma	413,000	390,000	— 23,000	— 5.6
Texas	1,291,000	1,430,257[3]	+139,257	+ 10.8
Total 8 Prorated States	2,973,000	3,082,738	+109,738	+ 3.7
Illinois	385,000	349,500[4]	— 35,500[5]	— 9.5
Other States	212,000	.....	.....	.....
TOTAL UNITED STATES	3,570,000	.....	.....	.....

[1] Recommendation of Conservation Committee of California Oil Producers.
[2] Estimate of actual production that will occur under prescribed regulations, which do not fix a definite state total allowable.
[3] Net basic daily allowable as of November 1. Texas fields will be shut down November 2, 3, 9, 10, 16, 17, 24, 28 and 30, under previously issued order, and net allowable will increase with completions of new wells.
[4] Average level to which unprorated Illinois production had naturally declined for 4 weeks ended October 26, 1940.
[5] Amount by which actual production in October fell short of estimated November demand.

gasoline stock level of 85,000,000 barrels as of March 31.

Comparisons of the scheduled November allowables with the Bureau of Mines estimates of demand appear in an accompanying table.

Leslie Cockrell, an employe of The Texas Company at its gasoline plant at Davenport, Oklahoma, became the company's first employe in the Oklahoma-Kansas-Illinois-Kentucky division to receive the president's medal, awarded by the National Safety Council. Presentation was made by H. N. Pardee, division manager of The Texas Company, Tulsa, at a special dinner meeting of company employes in Davenport, October 24. On July 17, Cockrell, right, saved the life of Pete Sukovatty, 8 years old. Sukovatty, attempting to siphon gasoline from his father's automobile, swallowed some of the fluid, lost consciousness, and stopped breathing. Artificial resuscitation by Cockrell restored normal breathing and saved the boy's life. Twenty-one employes of the company in other divisions have been recipients.

Seek to Set Pipe Line Rate in Marion County

Hart-McFarland Company, operating a pipe line in the Marion County shallow field, requested a rate of nine cents a barrel for gathering and transporting crude. At a hearing before the Texas Railroad Commission last week, they said the oil would move 2½ miles after gathering.

Two operators protested the rate, but did not offer a suggestion. Before the line was built, truckers charged ten cents a barrel to move the oil the same distance.

Evidence presented showed that the line cost $5600, and that approximately $3000 in charges had been assessed against oil moved through the unit. The line was completed in May, and maintenance charges since that time have amounted to $1200 approximately.

This is one of the first cases before the commission at which an attempt was made to fix the rate for a line newly constructed.

Seek Underground Storage of Texas-Kansas Gas in Michigan

Michigan Consolidated Gas Company has filed an application with the Securities Exchange Commission for approval of purchase of the Austin (Mecosta County) gas field, to be used primarily as a natural reservoir for the storage of gas from Texas and Kansas fields.

The Austin field was discovered in 1933 by Taggart Brothers Company, of Big Rapids (formerly Taggart Brothers, Inc.), and from 1935, year of first withdrawals, to June 30, this year, has produced 6,000,000,000 feet of gas. Production is from the Michigan Stray, a sand formation overlying the Marshall sandstone. Wells have an average depth of 1500 feet.

If the SEC approves the sale, it will mark the first definite step to establish underground storage for out-of-state gas to supply Michigan markets.

"The company stated it would be economically practicable to purchase gas from the Panhandle Eastern Pipe Line Company during the summer months for use during the fall and winter months in Detroit, Grand Rapids and Muskegon districts," the SEC said. Michigan Consolidated Gas Company now supplies Detroit with Texas-Kansas gas, while Grand Rapids and Muskegon are serviced from Michigan fields.

Construction of a pipe line from Detroit, tying into the Texas-to-Michigan line, to the Austin field, approximately 145 miles, would be necessary if the program is carried through.

War Department to Hold Baytown Ordnance Plant

The War Department announced last week that the $10,760,000 toluol plant for which it had contracted with Humble Oil & Refining Company, Houston, will be constructed and operated by the company on a cost-plus-fixed-fee basis, and title to the plant will remain with the government.

In its original announcement of the contract and an agreement under which the company was to install additional equipment to the amount of $1,097,00 in its present plant at Baytown, Texas, adjacent to which the new plant is to be erected, it was indicated that at the end of five years the company would have option of purchasing the property at cost less some pre-arranged rate of depreciation, or, alternative, at some negotiated sum.

The department's latest explanation indicates that the purchase option is given only with respect to the equipment which the company is to install in its own plant, and that the new plant, to be known as the Baytown Ordnance Works, is to be made a permanent part of the War Department's ordnance production facilities.

Natural Gas Consumption Shows Increase for 1940

Increased business over a year ago is reported by natural gas companies, with more customers being served.

Revenues of the natural gas industry in the first 8 months of 1940 aggregated $333,342,900, or 9.6 percent more than in the corresponding months of 1939, according to the American Gas Association.

Revenues from industrial uses increased 8.4 percent, while those from domestic uses were up 9.9 percent.

During the 8 months, 1940, about 118,397,900,000 feet of natural gas were used in generating electric power in public utility steam plants.

Tulsa Purchasing Agents Hold Annual Meeting

The Purchasing Agents Association of Tulsa, affiliated with the National Association of Purchasing Agents, held its eighth annual Executives Night Dinner Meeting last week.

Stuart F. Heinritz, editor of Purchasing, spoke on the problem now confronting the federal government in procuring war and navy supplies and materials, and its relation to industry at large.

The history of the local organization, and its connection with industry, was briefed. Reports were made by chairmen of active committees, and officers of the association, local and national, were introduced to the gathering.

Associations

Texas Mid-Continent Body Considers Defense Oil Supply

While Germany and Italy seek to obtain a more plentiful and permanent supply of petroleum so they may continue to use their highly mechanized armies to full advantage, the United States petroleum industry stands adequately equipped to fulfill any and all national defense consumption requirements without disturbing civilian demand. These thoughts were brought to the Texas Mid-Continent Oil & Gas Association's annual convention in Fort Worth last week by two principal speakers.

One of these speakers pictured the recent drive of the Axis powers into the Balkan states as a search for additional petroleum supplies, and predicted that Germany and Italy had not obtained a sufficient supply when Rumania was invaded and were "casting eyes" in the direction of the oil wells in Persia, Iraq, Iran and other Near East fields.

That the situation is entirely different in the United States was voiced by the other guest speaker, who stated that the huge back log of crude oil reserves, curtailed production, refining and transportation facilities assured the nation a more than adequate supply of petroleum products even if the country became involved in war at an early date.

With one exception, officers of the association were re-elected. All directors were renamed for another year, and eight additions made to the board.

Officers of the association are E. L. Smith, president; George C. Gibbons, executive vice president; Eugene McElvaney, treasurer. Eight vice presidents, one from each district of the state, are as follows: H. R. Cullen for the Gulf Coast; B. G. Byers for East Texas, succeeding Bryan W. Payne; J. L. Collins for East Central Texas; D. Houston Bowyer for North Texas; M. B. Davis for the Panhandle District; Hamilton McRae for West Texas; Joe A. Clarke for West Central Texas, and Al Buchanan for Southwest Texas.

The eight new directors added were Ray Dillard, J. K. Hughes Oil Company, Mexia; Edward Hudson, Emperor Oil Company, Ft. Worth; Earl Smith, Ownby Drilling Company; Fred Muray, Oil Well Supply Company, Dallas; H. C. Cockburn, Cockburn Oil Company, Houston; A. J. Galloway, Shell Oil Company, Houston; Si Yoakum, Gorman & Yoakum, San Antonio, and Bill Bonner, Normandy Oil Company, Houston.

Hitler Needs Oil

Germany's march into the Balkan states was in part due to the necessity of seeking oil and gasoline in order to be able to continue the war next spring, asserted M. W. Fodor, foreign newspaper correspondent, who lived in central and southeastern Europe for 20 years and for 7 years in the shadow of Hitler. Moreover, Fodor expressed himself as believing Germany has her eyes on existing supplies and future possibilities of oil wells in the Near East (Persia, Iraq and Iran).

"Germany's probable present supply of gasoline, calculated on an annual output basis, is around 36,000,000 barrels," Fodor continued, after explaining that this compared with approximately 29,100,000 barrels in January of this year. He stated that since January the supply of Rumanian oil available to the Axis had increased, due to the invasion, but that the Russian supply reaching Germany had declined. "Should the German claim of a considerable increase of synthetic production materialize and if Rumania's supply will reach 21,000,000 barrels, then Germany can increase her present resources to 51,000,000 barrels per annum. But," the speaker declared, "at the present moment she hardly reaches the 40,000,000 level.

"Her present requirements of crude oil and gasoline, despite the drastic reduction of private automobile traffic in Germany and in the occupied territories, amounts to more than 80,000,000 barrels. She certainly can obtain only half of this amount by regular and normal supplies. How, then, was she able to continue the bombardment of London and how could she move her troops from one frontier to another?

"The explanation is the loot, or booty, obtained in the occupied countries of Norway, Denmark, Holland, Belgium and France. Enormous quantities of oil stocks, including high-powered gasoline, fell into their hands. The exact quantity of this loot cannot be established because the defeated minimize their losses, while the Germans (for obvious reasons) do not reveal the quantity of the booty because they want the world to believe it is higher than in reality. . . . I estimate that about 50,000,000 barrels of crude oil, gasoline, high-octane gasoline and lubricants fell into the hands of the Germans in Norway, Holland, Denmark, Belgium and France.

"These stocks, however, are not inexhaustible and constitute a single opportunity of supply. If Germany desires to keep on bombing London and is still dreaming of an invasion of England next spring, then she needs a permanent supply of oil," and consequently, Fodor concluded, is casting her eyes on the Near East oil fields.

United States Oil Supply Ample

The American oil industry stands ready to meet every demand which may be made upon it due to a national emergency, including civilian, military and naval requirements, was the declaration of Ray L. Dudley, publisher of THE OIL WEEKLY and one of the principal speakers during the convention. His remarks are published in full beginning on page 12 of this issue.

He cited the growth in crude reserves in recent years, and presented the conclusions of a survey made to determine

The forty-fifth anniversary of the discovery of commercial oil in Texas was celebrated by the Texas Mid-Continent Oil & Gas Association by erection of one of the original drilling units in downtown Fort Worth. This rig, a rotary type, was built in 1883 in South Dakota and brought to Corsicana in 1895. In the picture, left to right, are: Jack P. Shannon, now with Snowden & McSweeney, Fort Worth, who probably is the dean of Texas oil men in length of service; J. G. Hamill, Fort Worth, worked on the famous Spindletop discovery well in 1901 and prior to that time was in the Corsicana field; A. W. Hamill, driller on the Spindletop discovery well, now of Tulsa; William A. Elliott, Corsicana, surveyor who staked out site for the water well that made oil and then made location for the first oil well, which was completed in October, 1895; C. E. Rittersbacher, in light suit, American Well & Prospecting Company, Corsicana, who with his brother own the rotary rig shown, and whose father was one of the trio who drilled the water well at Corsicana that found oil and who improved the rotary rig shown materially and which was later used in drilling the Spindletop well; Frank Pickrell, Fort Worth, driller of the Big Lake discovery that opened Permian Basin of West Texas for oil. Next is "Kate," the mule that furnished the horsepower during the Fort Worth ceremony.

how much the United States could increase its output of petroleum without harmful influence on wells. By taking the most conservative estimate from each state, it was found that seven states practicing proration could increase their output "by 811,000 barrels per day—and this without drilling a single additional well."

This increase is almost equivalent to the entire daily average production of the United States throughout the year 1916, and constitutes an increase of more than 21 percent over present daily production.

Dudley declared that the industry's ability to adequately fulfill any and all demands made upon it was due to the highly individualistic character of the petroleum business, and that there is "only one thing that could possibiy interfere with the smooth functioning of the oil industry in this matter of national defense. This one thing which could interrupt the smooth flow of service of the oil industry to national defense would be unwarranted government interference or control. That it is not necessary is proven by the state of preparedness of the oil industry today. That it would be most dangerous is proven by the history of countries that have tried the experiment abroad."

Following Dudley's address George A. Hill, Jr., introduced a resolution that was adopted unanimously. It pledged the "industry's voluntary cooperation" in fulfilling any requirements desired for the national defense program.

If the Texas oil industry were suddenly to shutdown all its operations, the state would lose its greatest mainstay, said R. B. Anderson, chairman of the association tax committee, in an address at the meeting.

He pointed out that if this were to occur it would result in:

1. Over one million Texans now depending directly upon the industry for a living would be obliged to go elsewhere to seek their livelihood;

2. The loss of income which oil now creates for many other businesses would result in throttling the livelihood of at least another million Texans.

3. Farmers and ranchers of the state would lose an annual income of $128,000,000 yearly in lease and royalty payments;

4. Many thriving communities would become "ghost" towns;

5. The state's fiscal picture would have to be revised drastically because over $75,000,000 a year in direct tax revenue is now paid by this one industry.

Pointing out the rapidly upward surge in government costs and the increasingly larger proportion paid by petroleum, Anderson concluded that "it is up to our state and local officials to seek ways and means of reducing the cost of government and lightening instead of increasing the tax load borne by industry and the people of the state. I think everyone will agree with me when I say that the cost of Texas government has already increased beyond reasonable limits and that it must be reduced if the well being of Texas industry and Texas people is to be preserved."

E. L. Smith, president of the association, sketched the history of the organization and discussed many of the problems confronting Texas oil men. Nearly 1500 members representing 800 companies operating in the state now make up the association, plus a staff of workers.

Smith charged every member with a task of special importance during the coming year. In addition, he said, "to the tax bills introduced in the legislature against which we must fight for our continued existence, a resourceful group of school teachers have chosen as a subject for debate in the high schools and colleges of Texas: 'Resolved that Natural Resource Taxes Should Be Increased.' In every city and hamlet where a high school or college may be, the subject will be debated this year. Is the question of more taxes on our business one of academic debate or of recognition of economic facts related to what the industry can bear?" he asked.

Paul W. Pitzer, chairman of the association's theft prevention committee, reported that since the inception "of the program in May, 1937, 199 oil-field thieves have been convicted and sent to the penitentiary, and 56 rewards have been paid to officers. Several cases are now pending, in which convictions will

Millikan Honored for 20 Years of Petroleum Research

C. V. Millikan, chief petroleum engineer for Amerada Petroleum Corporation, Tulsa, has been presented with a scroll bearing signatures of leading engineers of the American Institute of Mining & Metallurgical Engineers honoring his 20 years of continuous service to the institute and to engineering research. The presentation was made by Paul Weaver, Gulf Oil Corporation, Houston, during the recent meeting of Mid-Continent Section of the Institute's Petroleum Division.

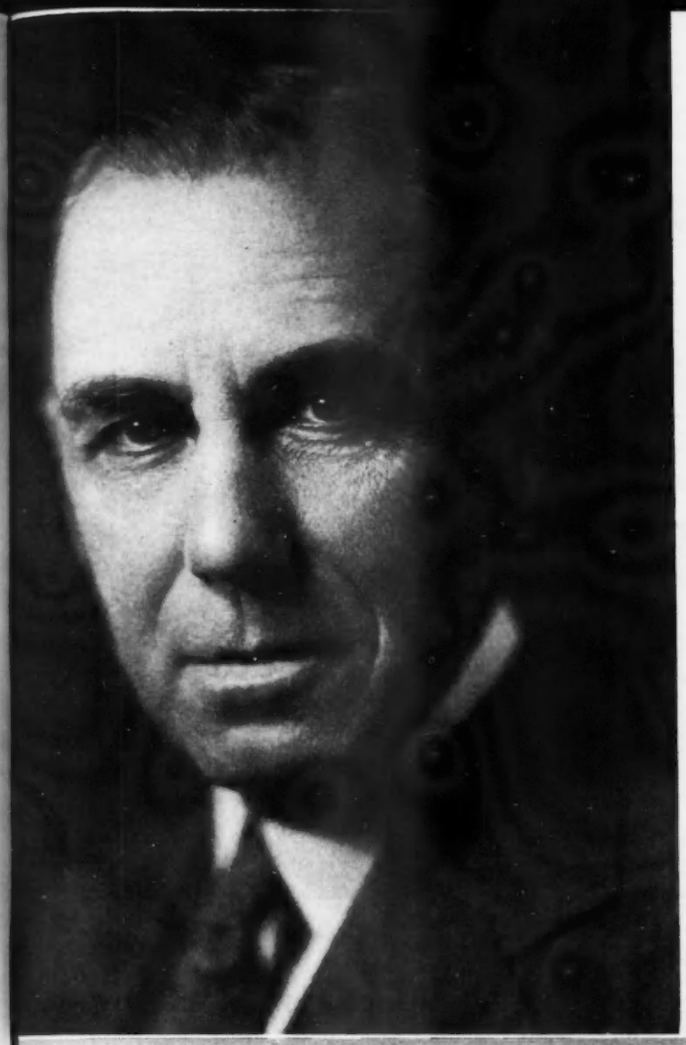
The award, bearing signatures of leading engineers of A.I.M.E., was in honor of 20 years of continuous service to the Institute and to engineering research.

Charles V. Millikan was born in Noble County, Oklahoma. He attended Oklahoma A. & M. College, graduating in 1917 with a B.S. degree. He attended University of Pittsburgh where in 1920 he obtained a M.S. degree, and that same year he became a member of A.I.M.E., serving as chairman of the Petroleum Division. His association with Amerada Petroleum Corporation began in 1922 when he joined the firm as petroleum engineer.

Millikan has pioneered in the evaluation of natural gas properties, in gas-lift principles, and in gas/oil ratio investigation. He was instrumental in giving to the industry a method of surveying well deviation, and ran the first instrument in 1928. He later turned his attention to bottom-hole pressures, aiding in the design and construction of a pressure recorder. In addition to concerning himself with better production methods generally, he advanced geophysical exploration with both instruments and the core drill.

In recent years, Millikan has specialized in analysis of well temperatures, and has developed a recording thermometer to give a temperature-log of wells. This work and his findings were the subject of his paper, "Temperature Surveys in Oil Wells," presented at the meeting. He is an active member of American Petroleum Institute and American Association of Petroleum Geologists.

C. V. Millikan, chief petroleum engineer for Amerada Petroleum Corporation, Tulsa, is shown at the right being congratulated by Paul Weaver, Gulf Oil Corporation, Houston.



E. R. BROWN, left, one of Texas' earliest oil pioneers and today one of the industry's leading industrialists, was one of two men honored by the Texas Mid-Continent Oil & Gas Association with distinguished service awards.

Brown has the distinction of having been associated with the petroleum industry in Texas since its inception, and of having spent all the intervening years since with the same company or its successor. He remains active in the affairs of the company and industry today. To a large extent he is responsible for many of the oil developments in the Southwestern United States from its small beginning at Corsicana to its present vast proportions.

He was employed in 1894 by Standard Oil Company of New York in its Olean, New York, refinery, first as yard man at 15 cents per hour and later as assistant superintendent. When the J. S. Cullinan Company was organized in 1897 for the purpose of constructing a refinery in the then two-year-old Corsicana, Texas, field, Brown was hired as superintendent and moved to Texas in April, 1898. Thus, he supervised the construction and subsequent operation of the first refinery in Texas. In 1901, the J. S. Cullinan Company became Corsicana Refining Company and Brown was named manager. In 1907 the name was changed to Navarro Refining Company and in 1909 to John Sealy and Company. On April 24, 1911, Magnolia Petroleum Company was organized and he was elected vice president. In 1914 he became vice president and general manager. He became president in 1924, and since 1933 has been chairman of the board of both Magnolia Petroleum Company and Magnolia Pipe Line Company. When Magnolia Petroleum Company became an affiliate of Standard Oil Company of New York in 1925, Brown was elected a vice president and director of the parent company as well. In 1931 he was named vice chairman of the board. When Vacuum Oil Company and Standard Oil Company of New York were merged, Brown was elected a vice president and director of Socony-Vacuum Oil Company, Inc.

HONORED FOR DISTINGUISHED SERVICE

JAKE L. HAMON, right, has won many honors in the field of petroleum, and to these last week was added the distinguished service award of the Texas Division of the Mid-Continent Oil & Gas Association.

Hamon entered the oil business as a roustabout at Ranger, Texas. His first important production was obtained in 1923, when he and Edwin B. Cox purchased a group of old stripper wells in the Healdton, Oklahoma, field. With this purchase was formed the still existing partnership of Cox & Hamon, which has spread its holdings until it operates in a number of Oklahoma and Texas fields.

He was elected to the Board of Directors of the American Petroleum Institute in 1934, being the youngest director ever named to that body. He has been a director of the Independent Petroleum Association of America since 1930. He has been active in the work of the Texas Mid-Continent Oil and Gas Association, and in 1935 was elected president. His two terms were among the association's most important in extending its activities. During the several years the Texas Oil and Gas Conservation Association was active, Hamon was its vice president. He also served the industry as Oklahoma member of the Oil Code Committee. His distinguished record of service to the industry was continued by his recent election to the presidency of the National Stripper Well Association. He was elected vice president of the Independent Oil Producers' Equity Association, Inc., upon its organization, which post he still holds.

In addition to his work for the petroleum industry as an official of the numerous organizations with which he has been connected, Hamon also has served it often as a spokesman in both national and state capitals.

Officers of Kansas-Oklahoma Division of Mid-Continent Association

ROBERT S. KERR
President

L. G. OWEN
Vice President

CLAREL B. MAPES
Secretary

doubtless be secured, and rewards will be paid."

Pitzer urged "that all operators brand or stencil their equipment, if that has not already been done. Records of brands should then be furnished the association, so that definite identification will be possible in case of theft and recovery. All thefts should be reported as soon as possible to our office so that immediate action may be taken."

Other committee reports showed the work and success of the organization in getting the Texas Railroad Commission to simplify and reduce the forms that must be filed by oil men, in procuring a clarification of the definitions used in the National Wage-Hours Act, and in connection with social security regulations.

Kerr Renamed to Head Kansas-Oklahoma Group

Robert S. Kerr, Kerlyn Oil Company, Oklahoma City, was reelected for the sixth time as president of the Kansas-Oklahoma Division, Mid-Continent Oil & Gas Association, at its annual meeting October 28. L. G. Owen, chief counsel, The Carter Oil Company was elected vice president, succeeding Frank O. Prior, Stanolind Oil & Gas Company. Clarel B. Mapes, secretary-treasurer, was also renamed.

T. C. Johnson, Wichita operator, was renamed vice president for Western Kansas, as was Carl Weiner, Chanute, for Eastern Kansas.

Oklahoma's three vice presidents were reelected: A. W. Ambrose, Cities Service Oil Company, Bartlesville, for Northern Oklahoma; Lloyd Noble, Noble Drilling Company, Ardmore, for Southern Oklahoma, and W. R. Wallace, Magnolia Petroleum Company, Oklahoma City, for Western Oklahoma.

A resolution was adopted making Robert S. Ellison, president of Stanolind Pipe Line Company and Stanolind Oil Purchasing Company, a life member of the organization. He recently announced his retirement, effective November 5.

The 1941 representation from Kansas-Oklahoma division to board of directors of the general Mid-Continent Oil & Gas Association include: K. S. Adams, Phillips Petroleum Company, Bartlesville; A. W. Ambrose, Cities Service Oil Company, Bartlesville; J. Steve Anderson, Anderson - Prichard Oil Corporation, Oklahoma City; Guy T. Berry, Big Brothers Oil Company, Independence, Kansas; A. M. Blow, Amerada Petroleum Corporation, Tulsa; Burdette Blue, Indian Territory Illuminating Oil Company, Bartlesville; W. L. Connelly, Sinclair Prairie Oil Company, Tulsa; J. J. Conry, The Carter Oil Company, Tulsa; William N. Davis, Bartlesville; J. C. Denton, Mid-Continent Petroleum Corporation, Tulsa; W. W. Fleming, The Ohio Oil Company, Tulsa; E. J. Gorman, Sun Oil Company, Tulsa; Rush Greenslade, Gulf Oil Corporation, Tulsa; H. N. Greis, Burke-Greis Oil Corporation, Tulsa; C. C. Herndon, Skelly Oil Company, Tulsa; T. C. Johnson, Wichita; Robert S. Kerr, Kerlyn Oil Company, Oklahoma City; Frank B. Long, Oklahoma Natural Gas Company, Tulsa; Clarel B. Mapes, Mid-Continent Oil & Gas Association, Tulsa; J. D. McNutt, The Pure Oil Company, Tulsa; D. J. Moran, Continental Oil Company, Ponca City; Lloyd Noble, Noble Drilling Company, Ardmore; H. N. Pardee, The Texas Company, Tulsa; R. B. Pringle, Tide Water Associated Oil Company; F. O. Prior, Stanolind Oil & Gas Company, Tulsa; Ralph Pryor, Pryor & Lockhart, Wichita; E. B. Reeser, Barnsdall Oil Company, Tulsa; L. C. Ritts, Devonian Oil Company, Tulsa; Ralph B. Roard, Shell Oil Company, Inc., Tulsa; Will H. Smith, Estate of C. R. Smith, Ardmore; W. R. Wallace, Magnolia Petroleum Company, Oklahoma City; Carl Weiner, Chanute, and H. E. Zoller, The Derby Oil Company, Wichita.

Pacific Geologists Meet This Week in Los Angeles

The seventeeth annual convention of the Pacific Section of The American Association of Petroleum Geologists and the annual meeting of the Pacific Section of the Society of Economic Palentologists and Mineralogists will be held at Los Angeles November 7 and 8. Sessions of the geological association will be held at the Ambassador Hotel, and those of the Economic Paleontologists and Mineralogists at the Clark Hotel.

Everett C. Edwards, General Petroleum Corporation, is chairman of the program committee of the section and Clifton W. Johnson, Richfield Oil Corporation, is chairman of the arrangements committee. Albert Gregersen, The Texas Company, is president of the section; Roy M. Barnes, Continental Oil Company, past president; and E. J. Bartosh, Bankline Oil Company, secretary-treasurer.

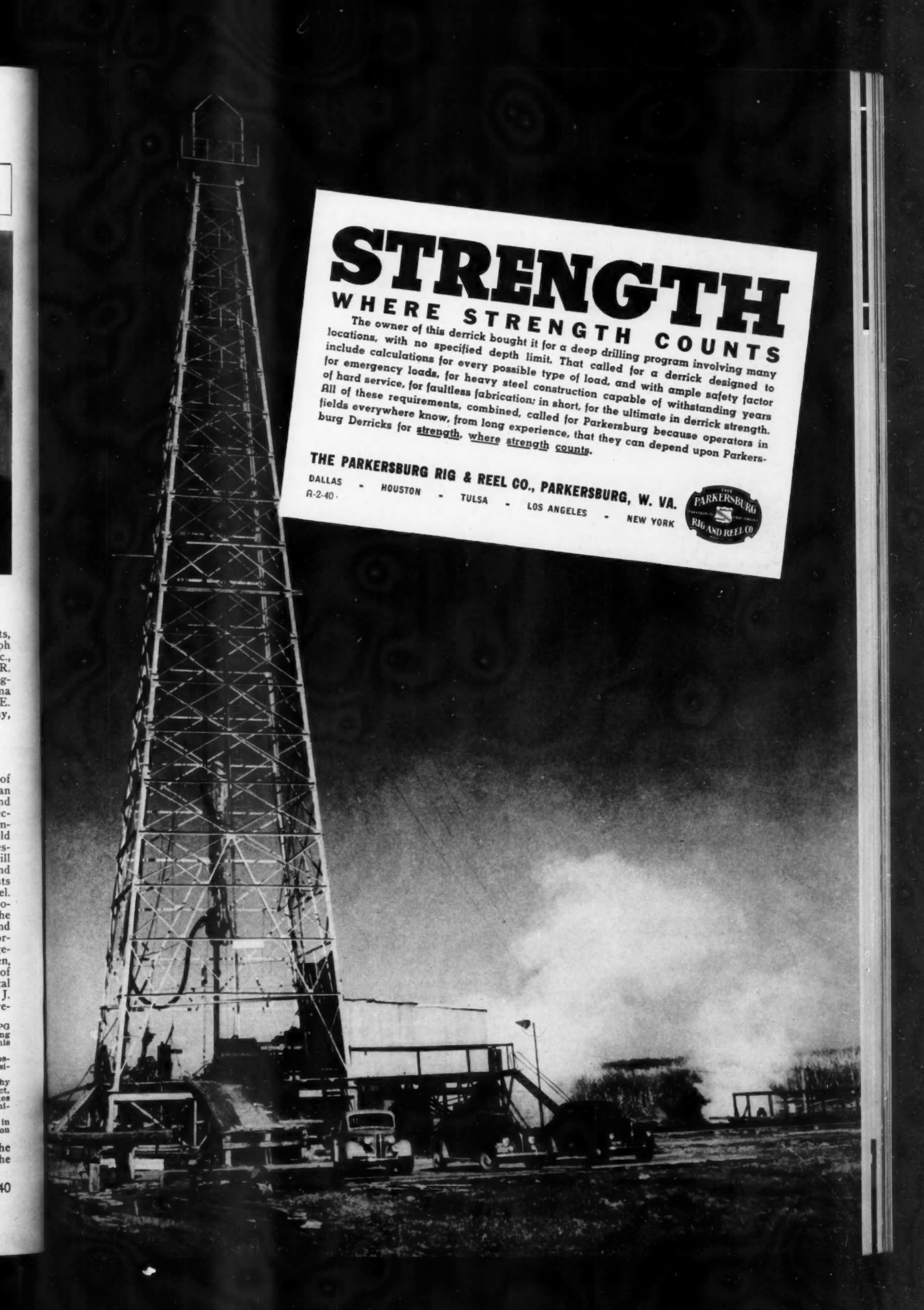
Dr. L. C. Snider, New York, national AAPG president, will open the Thursday morning program of the geologists, and following his address these papers will be presented:

"Quantitative Introduction to Gravity Prospecting," by Frederick Romberg, Geophysical Service, Inc.

"Late Miocene and Pliocene Stratigraphy and Paleontology of the Santa Maria District, California," by W. P. Woodring, United States Geological Survey, and M. N. Bramlette, University of California, and

"Thrust Faulting and Coarse Clastics in Temblor Range, California," by F. S. Hudson and G. H. White, Shell Oil Company.

A. I. Levorsen, past president of the AAPG, Tulsa, will discuss plans of the


STRENGTH
WHERE STRENGTH COUNTS
The owner of this derrick bought it for a deep drilling program involving many locations, with no specified depth limit. That called for a derrick designed to include calculations for every possible type of load, and with ample safety factor for emergency loads, for heavy steel construction capable of withstanding years of hard service, for faultless fabrication; in short, for the ultimate in derrick strength. All of these requirements, combined, called for Parkersburg because operators in fields everywhere know, from long experience, that they can depend upon Parkersburg Derricks for strength, where strength counts.
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association's research committee during a luncheon session Thursday. Papers scheduled for the afternoon are:

"The Estimation of Volumetric Methods of Recoverable Oil and Gas from Sands," by John F. Dodge, University of Southern California, and Howard C. Pyle and Everett G. Trostel, Union Oil Company of California, and

"The Accumulation of Marine Diatomaceous Sediments," by Richard W. Fleming and M. C. Sargent, The Scripps Institute of Ocenanography.

Election of officers and other association business will complete the Thursday afternoon program.

The following papers are scheduled for Friday:

"The Role of Foraminifera in the Oil Industry," by Herschel L. Driver, Standard Oil Company of California;

"Geology of the del Valle Field, Newhall District, California," by Richard W. Sherman, British American Oil Production Company;

"Interpretation and Application of Electric Logs," by R. W. Norton, Standard Oil Company of California;

"Geology and Gas Potentialities of Marysville Buttes," by Harry R. Johnson;

"Recently Discovered Deep Miocene Production in the Inglewood Oil Field," by A. F. Woodward, Stanley & Stolz;

"Seismic Velocity Variations in the San Joaquin Valley," by W. S. Olson, The Texas Company;

"The Stevens Sand, San Joaquin Valley," by Rollin Eckis, Richfield Oil Corporation, and

"Ecologic Factors in Correlation," by J. E. Eaton.

A dinner and dance has been scheduled for Friday evening, to be held in the Ambassador Hotel.

The palentologists and mineralogists will hold their annual meeting Thursday evening, with J. M. Hamill presiding. A paper on "Exploration Activities and Results in California" will be presented by Roy M. Barnes, Continental Oil Company.

Eastern A.P.I. Group Will Hold Spring Meet April 17-18

The Eastern District of the American Petroleum Institute's Division of Production will hold its spring meeting April 17-18 at Pittsburgh. J. J. Schmidt, East Ohio Gas Company, Cleveland, district chairman, has requested members to suggest speakers and topics for the program at an early date.

O. W. Van Petten, Columbian Carbon Company, Charleston, West Virginia, is chairman of the program committee. Members are K. C. Cottingham, The Ohio Fuel Gas Company, Columbus, Ohio; Bart DeLaat, The Pure Oil Company, Olney, Illinois; F. E. Eckert, Hanley & Bird, Bradford, Pennsylvania; F. H. Finn, Peoples Natural Gas Company, Pittsburgh; M. R. Joy, Cities Service Oil Company, Mt. Pleasant, Michigan, and R. J. Sullivan. The Carter Oil Company, Mattoon, Illinois.

J. H. Newlon, Equitable Gas Company, Pittsburgh, is chairman of the arrangements and entertainment committee, and will be assisted by V. F. Bowyer, Peoples Natural Gas Company, and T. H. Myers, Carnegie Natural Gas Company, both of Pittsburgh.

M. G. Gulley, Gulf Oil Corporation, Pittsburgh, as chairman of the publicity committee, will be assisted by I. W. Hartman, Gordon Oil Company, Mt. Pleasant, Michigan, and E. H. Tollefson, Hope Natural Gas Company, Clarksburg, West Virginia.

W. A. Watkins, The Carter Oil Company, Mattoon, Illinois, is chairman of the registration committee.

World-Wide Developments

Completion Enhances Eastern Venezuela as Market Factor

Eastern Venezuela, destined from showings in exploratory wells drilled two years ago to become an important factor in world petroleum reserves, was enhanced as a market factor by recent completion of The Texas Company of Venezuela's Los Caritos 1, wildcat that proved capable of yielding 400 barrels per day through tubing from an upper sand, and 275 barrels per day through various chokes from a lower sand.

The Los Caritos strike lies several kilometers east of a line drawn southwest from Pedernales, easternmost point of Venezuelan production, to Temblador, southeasternmost point of Venezuelan production. It therefore not only enhances the outlook of Eastern Venezuela because it represents an additional reserve in an area known to have remarkable petroleum possibilities, but Los Caritos extends that area, opening speculation as to the probability of continuation of the trend farther east toward the mouth of the Orinoco River on the Atlantic seaboard.

By way of comparison, Pedernales lies at the extreme northern tip of the Delta of Amacuro, a state-like federal territory of Venezuela situated west of and adjacent to Monagas, the state in which Los Caritos is located. Pedernales, discovered August 11, 1935, was allowed to produce 1,904,983 barrels in 1939. Well data on the field as of December 31, 1939, showed 10 wells on natural flow, 4 closed in, 1 inactive, and 4 abandoned out of the total of 19 drilled since discovery. Based on the yearly daily average production of 5219 barrels per day for the field in 1939, wells yielded around 521 barrels each. Production comes from between 5000 and 6000 feet.

The field nearest Los Caritos on the southwest, Temblador, is in the same state, Monagas. It is likewise in the same district, Sotillo. Temblador is a relatively shallow field, most production coming from between 3800-75 feet. The daily average yield of Temblador in 1939 was 10,039 barrels, with 58 flowing wells on production the last day of the year. Like Pedernales, all Temblador producers on December 31 were listed as flowing naturally. Of the 96 wells completed in Temblador up to December 31, 15 had been abandoned, 5 had been listed as inactive, and 18 were closed in.

Los Caritos is Commercial

Thus, it will be seen that the new strike at Los Caritos is in a general area classed as distinctly commercial. The Texas Company of Venezuela has completed two wells thus far on the concession. No. 1 indicated on a graphic log the existence of an upper sand at 5673-82 feet and a lower sand at 5694½-5700 feet.

Los Caritos 1 proved capable of yielding 400 barrels daily of 31.5-gravity oil through 2½-inch tubing when perforated at 5672-75 feet, or roughly opposite only about one-third of the indicated sand thickness. When perforated opposite only a small portion of the lower sand thickness, or at 5688-95 feet, it averaged 275 barrels per day through various chokes on tests running for 14 days. Four strings of casing were run in No. 1, 24½-inch set at 199 feet, 18⅝-inch at 1422 feet, 13⅜-inch at 3408 feet, and 9⅝-inch at 5730 feet. In addition, 2½-inch tubing was run to 5675 feet.

Los Caritos 2 was a disappointment, as often is the case with a large percentage of early wells in Eastern Venezuela fields. Drill-stem tests at 5805-28, 5813-23 and 5823-32 feet showed salt water, The test was abandoned. For the record, 18⅝-inch casing had been run to 84 feet, 13¾-inch to 1496 feet, 10¾-inch to 3017 feet, and 7-inch to 5849 feet.

Los Caritos area probably will not furnish any new drilling depth records for Venezuela, for The Texas Company of Venezuela carried No. 1 down to granite at 7098 feet.

Proximity of Los Caritos to the Boca de Uracoa simplifies the problem of an outlet for the oil. It can be barged on the Boca de Uracoa to Cano Manamo, one of the largest offshoots of the Orinoco, and thence on up the Cano to Guiria on the Gulf of Paria. Or, it can be barged to tide water through one of the various minor mouths of the Orinoco. Standard Oil Company of Venezuela has a sea terminal at Guiria.

Philippine Government Plans Oil Exploration

Manuel Quezon, president of the Philippine Islands, revealed recently he had authorized the expenditure of $250,000 to drill for oil at Cebu and on Bondoc Peninsula where surveys indicated chances of finding oil were favorable.

While the commonwealth is willing to permit private companies to drill for oil, it is going ahead with the drilling itself because "it is our impression there is oil in the Philippines," Quezon stated.

He lately has been conferring with oil companies, seeking their cooperation in construction of additional storage facilities in the islands, though he has expressed a personal opinion that there will be no air raids on the Philippines for the next two years.

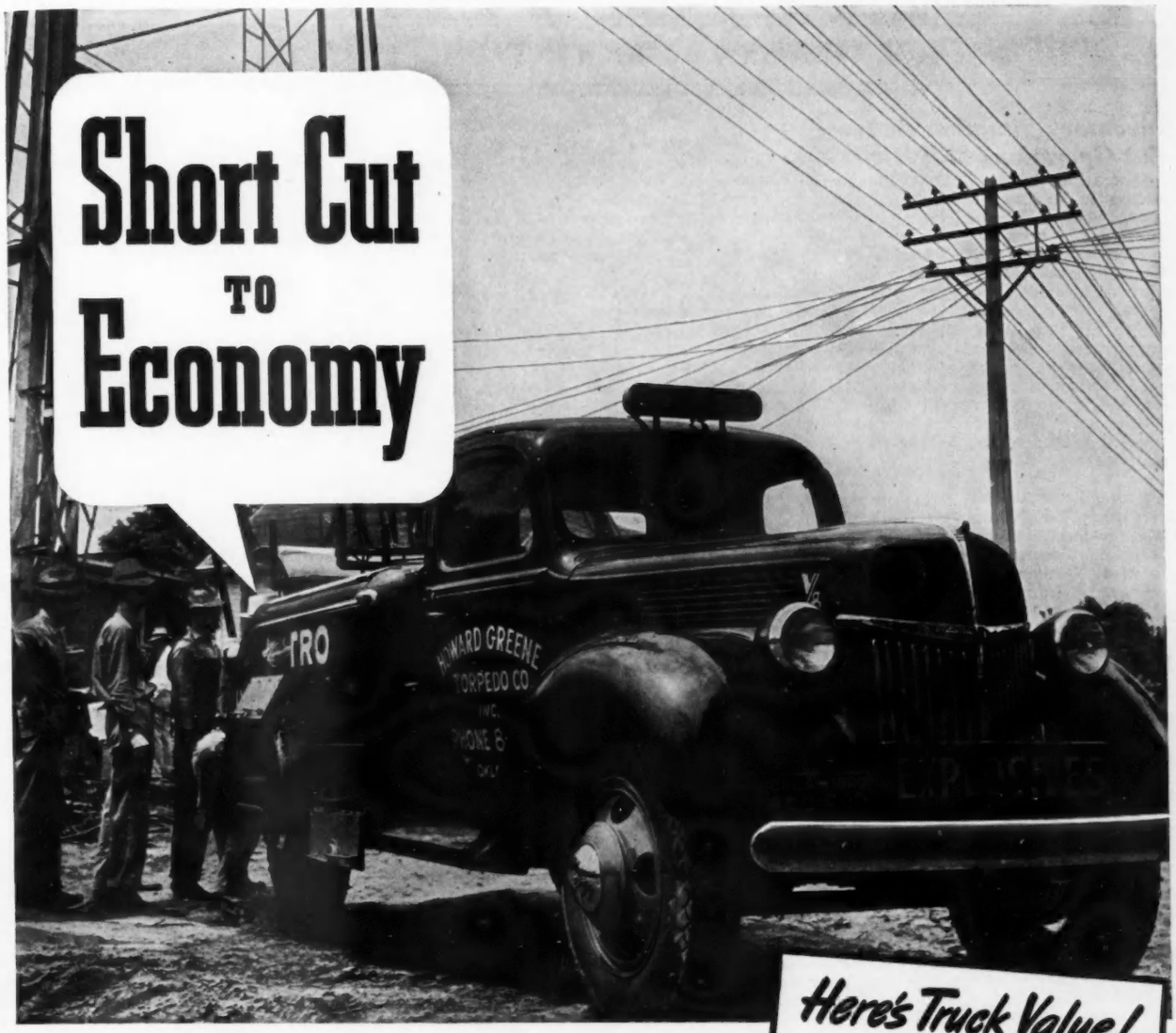
Oil Shortage Cripples Norway Fishing Industry

Shortage of petroleum products has seriously crippled Norway's major industry, fishing. In addition, because of this shortage no one in Norway is allowed to use a private car. Taxis are allowed to operate only three days a week.

Payton Operators Ask Shutdown Exemptions

Operators in the Payton field, Pecos and Ward counties, have requested that wells be exempt from shutdowns. Testimony presented at a hearing before the Texas Railroad Commission last week showed that this is the only field in Ward County which is not operating seven days a week.

The allowable now is 2217 barrels daily for 142 wells. The additional oil would be purchased by Atlantic Refining Company.



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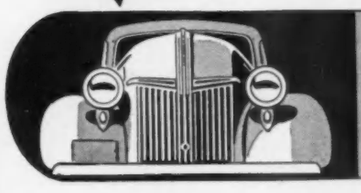

1941 FORD TRUCKS

FORD MOTOR COMPANY, BUILDERS OF FORD V-8 AND MERCURY CARS, FORD TRUCKS, COMMERCIAL CARS, STATION WAGONS AND TRANSIT BUSES

Inventory Situation Better But Operations Still High

Operations of the industry have continued in excess of levels considered economically desirable, both crude production and refinery runs having averaged in the week ended October 26 over 100,000 barrels more than the indicated ideal daily rates for the fall and winter.

Despite the excesses, however, a little additional improvement was made in the inventory positions of gasoline and light fuel oil, gasoline stocks having been reduced while gas oil and distillate fuel stocks were increased slightly.

Stocks of heavy fuel oils also were affected satisfactorily, having increased, with current and prospective demand good.

United States crude oil production averaged 3,640,000 barrels daily in the week ended October 26, the American Petroleum Institute reported. That was about 30,000 barrels less than the daily average of the previous week but 4 percent more than comparable output a year before. It was 60,000 barrels a day more than the United States Bureau of Mines estimate of average daily market demand for domestic crude in October. The crude output was, moreover, 115,000 barrels a day above the estimated 3,525,000 barrels daily calculated by economists as necessary throughout the fall and winter if gasoline stocks should be held, as of March 31, 1941, to the minimum working stock level of 85,000,000 barrels.

Crude runs to stills were stepped up 40,000 barrels in the week, having averaged 3,565,000 barrels daily. That was 15,000 barrels less than the runs in the corresponding week last year, but greatly exceeded the indicated economically desirable throughput. Economists have calculated that runs would have to be held to an average of about 3,400,000 barrels daily between September 1 and March 31 to achieve the previously mentioned ideal gasoline stock position at the end of the winter.

Production of gasoline totaled 11,243,000 barrels in the week ended October 26, the American Petroleum Institute estimated, and inasmuch as increased refinery runs were not yet fully reflected, that output represented a decrease from the production of 11,696,000 barrels in the preceding 7 days.

Finished and unfinished gasoline stocks in the United States were further reduced 765,000 barrels within the week, to 80,891,000 barrels. That quantity was about 8,000,000 barrels, or 10.8 percent larger than the excessive stocks of 72,944,000 barrels on hand at the end of October last year. Some progress toward achieving a better inventory situation was indicated by the latest figure; for a week previously, the gasoline stocks were 12.7 percent above a year before.

Stocks of gas oil and distillate fuel were increased slightly from 48,841,000 barrels (revised) to 48,893,000 barrels in the week of October 26, the API reported. The inventory is 9,000,000 barrels, or 23 percent, larger than at this time last year, and is indicated to be near the economically desirable level. The industry, therefore, has taken reasonably adequate precautions for meeting the likely heavy demand for heating oil during the coming cold months.

Although the nation's current active industrial operations are causing good demand for heavy fuel oils, stocks of that product were increased over 300,000 barrels, to 108,475,000 barrels, in the week of Octboer 26. They still were, however, 5 percent smaller than a year previously, when 114,016,000 barrels were held.

Stocks of refinable crude oil in the United States totaled 262,098,000 barrels on October 19, the United States Bureau of Mines reported. The crude inventory has shown practically no net change within the past 4 months, despite weekly fluctuations, having totaled 262,059,000 barrels on June 29.

Markets Continue Steady; Tanker Rates Up Sharply

The markets have continued generally steady, although price changes have been few within the past 10 days and limited chiefly to advances made on the Atlantic seaboard to cover additional increases in domestic tanker rates.

The crude markets have remained firm in most areas, although allowables have been under close scrutiny, inasmuch as quotas have appeared somewhat too high in some districts in October, particularly in Texas.

In November, the only important threat of overproduction is in Texas, as that state's total allowable is materially in excess of indicated market demand; and it is to be expected, consequently, that the crude markets in Texas will be under pressure again in November as they have been in recent weeks.

Although wholesale and retail prices of other products have remained generally steady, the gasoline market still is burdened by seriously excessive stocks, and no improvement of prices from extremely low levels has materialized. However, the industry has continued to take gasoline out of storage, whereas stocks have begun to increase in October in some recent years. And it is possible that in the coming cold months, additions to storage may be minimized by the record levels to which heating oil stocks have been built, as it may not be necessary to maintain refinery runs at extremely high levels in meeting the requirements for the burning oils.

Despite the comparatively large stocks of the light fuel oils, however, the markets for those oils are strong, as there appears to be some opinion that the stocks still are conservative.

Heavy fuel oils also are in good demand, with prices firm, as it is generally recognized that market requirements will continue large, because of current exceptionally brisk industrial activity.

Prices of refined products have been fractionally advanced on the Atlantic Coast, in reflection of further sharp increases in tanker chartering rates between Gulf Coast ports and points north of Hatteras. Last paid rates on clean boats were 36 cents a barrel for gasoline, 38½ cents for kerosene, and 41

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1938:						
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
December 10	3,245,100	3,150,000	[6]269,509,000	68,687,000	32,068,000	118,711,000
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
July 29	3,539,100	3,460,000	268,513,000	77,887,000	34,900,000	114,053,000
August 5	[1]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[5]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
September 30	3,658,200	3,560,000	233,023,000	71,168,000	38,081,000	115,466,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[3]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	39,562,000	114,786,000
November 25	3,818,100	3,510,000	231,811,000	75,595,000	38,527,000	112,106,000
December 30	3,545,000	3,445,000	237,742,000	80,985,000	34,184,000	106,680,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[1]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 31	3,501,350	3,575,000	265,865,000	85,393,000	44,766,000	108,774,000
September 28	3,799,950	3,600,000	263,609,000	82,373,000	47,986,000	108,450,000
October 5	3,488,800	3,555,000	263,551,000	82,256,000	48,187,000	107,964,000
October 12	3,641,550	3,555,000	261,511,000	81,927,000	48,743,000	108,449,000
October 19	3,667,550	3,525,000	262,098,000	81,656,000	48,841,000	108,141,000
October 26, 1940	3,640,300	3,565,000	.....	80,891,000	[8]48,893,000	108,475,000
October 28, 1939	3,498,500	[8]3,580,000	[4]229,127,000	72,944,000	39,778,000	114,016,000
Change in past year	+4.1%	—0.4%	+14.3%	+10.8%	+22.9%	—4.8%

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks, October 21, 1939.
[5] Lowest since October, 1922, due to shutdown of six Mid-Continent States. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California.
[8] October, 1939, daily average.

cents for No. 2 fuel oil. The rate for gasoline was up by the large amount of 6 cents from a week previously, and the new 2½ cent differential between the mentioned products compared with a previous 2 cent difference, the new rate for No. 2 fuel oil having been, therefore, 7 cents higher than the price paid a week before.

Texas Leads Sharp Decline In Crude Oil Production

Because of an extra shutdown day in Texas, United States crude oil production was down sharply last week, having averaged 3,468,600 barrels daily. That was 178,800 barrels less than the average daily output the previous week, 112,000 barrels less than average daily market demand for domestic crude in October, as estimated by the United States Bureau of Mines, and almost as much under November demand, which has been estimated at 3,570,000 barrels.

Texas alone accounted for 142,900 barrels of the 178,800-barrel drop, as the fields of the state were closed down under Texas Railroad Commission orders on October 27, October 31 and November 2. In the previous week they were shut down on October 20 and 26.

Another noteworthy decrease was that of 23,800 barrels in California production, which averaged 583,300 barrels daily, almost exactly the same as indicated market demand.

Illinois further declined 8300 barrels to 342,100 barrels daily, and was 63,100 barrels under October market demand.

Kansas was off 6900 barrels to 182,700 daily, but still was 4000 barrels above indicated demand.

Wholesale Prices of Refined Products

	Range late Last week (Cents a gal.)		Changes from week Before	
REFINED GASOLINE				
Oklahoma Refineries:				
60 Octane and under	3¾	4¼	...	...
63-66 Octane	4⅛	4½	...	...
72-74 Octane	4½	5	...	...
Mid-Western Tank Car:				
60 Octane and under	3¾	4¼	...	...
63-66 Octane	4⅛	4½	...	...
72-74 Octane	4½	5	...	...
New York Harbor:				
68-70 Octane	5	5½	...	...
72-74 Octane	5	6½	...	...
Gulf Coast:				
60 Octane unleaded	3⅝	4½	...	...
72-74 Octane leaded	3¾	4¾	...	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	2¾	2¾	...	...
F.O.B. Breckenridge, Texas	2½	2½	...	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	3⅞	4¼	...	...
42-44 water white	4	4⅝	...	...
Mid-Western Tank Car:				
41-43 water white	3⅞	4¼	...	...
42-44 water white	4	4⅝	...	...
New York Harbor	4⅝	5⅛	...	+⅜
RANGE OIL				
At Oklahoma Refineries	3½	3⅞	...	...
In Mid-Western Market, Group 3, basis	3⅝	3⅝	...	—¼
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3⅜	3½	...	...
No. 3	3¼	3⅜	...	...
Mid-Western Tank Car:				
No. 1 white	3⅜	3¾	...	...
No. 3	3⅛	3⅜	...	...
New York Harbor:				
No. 1	4¾	5⅛	...	+⅜
No. 3	4⅛	4⅝	...	+¼

	Range late Last week (Per Bbl.)		Changes from week Before	
HEAVY FUEL OILS				
Oklahoma Refineries:				
No. 6	$0.55	$0.55	...	...
Mid-Western Tank Car:				
No. 5	.75	.75	...	...
No. 6	.50	.50	...	—.05
New York Harbor:				
No. 5	1.35	1.55	...	...
No. 6	1.15	1.25	...	...
BUNKER C FUEL OIL (Per barrel, ships bunkers)				
Gulf Coast	$ .80	$ .90	...	...
New York Harbor	1.15	1.25	...	...
DIESEL OIL (Per barrel, ships bunkers)				
Gulf Coast	$1.50	$1.70	...	...
New York Harbor	1.70	1.70	...	...
Los Angeles Basin, 27 gravity	1.15	1.35	...	...
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210°, 10-25 pour test	13	15½	...	...
Neutral oil, pale No. 3 color, 150 viscosity at 100°, 0-10 pour test	8	10¼	...	...
Western Pennsylvania:				
Bright Stock, 145-155 viscosity at 210°, 25 pour test	12	13	...	...
Neutral Oil No. 3 color, 150 viscosity at 70°, 25 pour test	19	19	...	...

Japan Buys Material Part Of California's Oil

The petroleum industry of the United States as a whole would not greatly feel a total embargo on oil shipments to Japan, if such a ban should be made. But the California division of the industry would lose about 10 percent of its market.

Total exports of crude and refined oils from the United States to all

Extra Shutdown Day in Texas Sharply Cuts U. S. Crude Output

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (October)	State Allowable (Barrels Daily in October)	BARRELS DAILY FOR WEEK ENDED Oct. 26	Nov. 2
TEXAS—				
Texas Panhandle	.....	.....	79,900	85,900
North Texas	.....	.....	111,800	100,400
West Central Texas	.....	.....	30,700	27,900
West Texas	.....	.....	239,500	220,800
East Central Texas	.....	.....	77,200	71,800
East Texas Field	.....	.....	374,800	301,500
South Texas	.....	.....	225,500	209,200
Texas Gulf Coast	.....	.....	242,700	221,700
Total Texas	1,305,200	1,376,793*	1,382,100	1,239,200
CALIFORNIA—				
Long Beach	.....	.....	42,900	41,800
Midway-Sunset	.....	.....	40,500	38,600
Kettleman Hills	.....	.....	41,700	46,200
Wilmington	.....	.....	82,100	80,000
Others	.....	.....	399,900	376,700
Total California	583,200	571,000†	607,100	583,300
OKLAHOMA—				
Oklahoma City	.....	.....	94,100	94,300
Seminole Area	.....	.....	99,900	99,850
Others	.....	.....	198,900	200,350
Total Oklahoma	403,500	390,000	392,900	394,500
ILLINOIS—				
Salem	.....	.....	137,500	135,500
Louden	.....	.....	74,500	71,000
Centralia	.....	.....	18,500	18,000
Other New Pools	.....	.....	109,500	107,800
Old Pools	.....	.....	10,400	9,800
Total Illinois	405,200	.....	350,400	342,100

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (October)	State Allowable (Barrels Daily in October)	BARRELS DAILY FOR WEEK ENDED Oct. 26	Nov. 2
LOUISIANA—				
North Louisiana	.....	60,226	66,200	66,800
South Louisiana	.....	209,405	215,800	215,200
Total Louisiana	274,200	269,631	282,000	282,000
KANSAS	178,700	188,450	189,600	182,700
NEW MEXICO	104,500	104,500	101,300	101,500
EASTERN STATES—				
Pennsylvania Grade	66,200	.....	70,100	68,250
Others, Eastern	20,200	.....	20,100	20,250
Total Eastern States	86,400	.....	90,200	88,500
MOUNTAIN STATES—				
Wyoming	75,200	.....	77,800	76,500
Montana	17,700	.....	17,800	18,300
Colorado	3,900	.....	3,500	3,400
Total Mountain States	96,800	.....	99,100	98,200
MICHIGAN	53,900	§47,000	47,400	48,200
ARKANSAS	70,700	68,743	69,500	69,200
INDIANA	9,300	.....	18,500	19,200
MISSISSIPPI	9,000	.....	14,200	16,700
NEBRASKA	.....	.....	3,100	3,300
‡Total 8 Prorated States	2,973,900	3,016,117	3,071,900	2,900,600
Total United States	3,580,600	.....	3,647,400	3,468,600

* Net basic daily allowable as of September 29. Texas fields will be shut down October 5, 6, 12, 13, 19, 20, 26, 27 and 31, under previously issued order, and net allowable will increase with completions of new wells.
† Recommendation of Conservation Committee of California Oil Producers.
§ Estimate of actual production that will occur under prescribed regulations, which do not fix a definite state total allowable.
‡ Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Arkansas, Michigan.

countries in August amounted to 10,930,000 barrels, and of that quantity, about 1,684,000 barrels, or 15 percent, went from California to Japan. The shipments to the Asiatic country represented a relatively large proportion of the nation's shrunken export business, but they constituted only 1.4 percent of the total domestic and foreign demand for United States oils.

However, the 1,684,000 barrels of crude oil and principal refined products which the California oil industry shipped to Japan in August represented 8.7 percent of that state's petroleum production of 19,257,000 barrels during the month.

California lately has been producing approximately 600,000 barrels of crude oil daily, and most of that output has been absorbed by the domestic and Japanese markets. Loss of 8.7 percent of the market, on the basis of Japan's August takings, would involve about 52,000 barrels, and would necessitate curtailment of California production to around 550,000 barrels daily if the output were kept within market requirements.

Although aviation gasoline has been banned from shipment outside the Western Hemisphere, the embargo so far has not been extended to cover other petroleum products or crude oil. But when further export controls were applied recently on iron and scrap steel, speculation arose as to whether oils other than gasoline similarly would be placed under new restrictions.

Proportion of California's Petroleum Production That Goes to Japan

(Figures Indicate Barrels)

MONTH	California's Crude Oil Production	SHIPMENTS FROM CALIFORNIA TO JAPAN							Percent of California's Petroleum Going to Japan
		Crude Petroleum	Gasoline	Kerosene	Lubricants	Light Fuel Oil	Heavy Fuel Oil	Total Crude Oil and Principal Refined Products	
1940									
January	18,960,000	1,107,000	119,000	42,000	.....	528,000	63,000	1,859,000	9.8%
February	17,643,000	757,000	106,000	.....	.....	349,000	127,000	1,339,000	7.6%
March	18,672,000	819,000	76,000	.....	.....	384,000	129,000	1,408,000	7.5%
April	18,403,000	804,000	17,000	.....	.....	367,000	147,000	1,335,000	7.3%
May	19,019,000	952,000	32,000	.....	.....	371,000	372,000	1,727,000	9.1%
June	18,524,000	960,000	5,000	.....	.....	548,000	207,000	1,720,000	9.3%
July	19,122,000	1,193,000	130,000	.....	.....	621,000	274,000	2,218,000	11.6%
August	19,257,000	887,000	102,000	.....	.....	320,000	375,000	1,684,000	8.7%
Total, 8 months	149,600,000	7,479,000	587,000	42,000	.....	3,488,000	1,694,000	13,290,000	8.9%

Favored Dutch Indies Oil Imports Quota Nearly Filled

Less than 30,000,000 gallons of crude petroleum, topped crude and fuel oil remain to be imported from the Dutch Indies under the excise-tax reduction in the Venezuelan trade agreement through the remainder of this year, it was disclosed October 29 by the Treasury Department.

Preliminary reports from collectors of customs, the department announced, show imports of 498,524,566 gallons from the Netherlands and its overseas territories during the period from January 1 to October 19, out of the quota of 527,691,192 gallons granted that country for the current calendar year.

The report did not disclose the imports from other countries sharing in quotas of the Venezuelan agreement.

Set Antelope Rules

Sixteen-acre proration units for wells in the Antelope field, Clay County, are provided in a new Texas Railroad Commission order. Wells may be located 330 feet from lease lines and 660 feet apart. On the proration schedule, a maximum of 23 acres may be assigned to the final well on a lease, and no proration unit may be more than twice as long as its width.

Any operator may drill on 32-acre proration units, but no well may be assigned 32 acres if it is closer than 1184 feet to the nearest well on the same lease.

Oil is to be distributed on acreage, per well and potential, with one-third assigned on each factor.

CALIFORNIA CRUDE OIL PRICES

Posted effective February 1, 1940. All gravities above those quoted take highest price offered in that field.

Gravity	Wilmington	Signal Hill (Long Beach) El Segundo	Seal Beach	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea, Canon	Athens-Rosecrans	Elwood Terrace	Torrance	Richfield	Whittier, East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Newhall, McKittrick, Kern River, Round Mt., Kern Front	Greeley Canal	Coles Levee, Richfield Western	Mountain View	Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills
14-14.9	$0.60	$0.65	$0.64	$0.63	$0.64	$0.65	$0.61	....	....	$0.65	$0.61	$0.61	$0.62	$0.63	....	$0.60	....	....	....	$0.60	$0.60	$0.60	....	....
15-15.9	.60	.65	.64	.63	.64	.65	.61	....	....	.65	.61	.61	.62	.63	....	.60	....	....	....	.60	.60	.60	....	....
16-16.9	.60	.65	.64	.63	.64	.65	.61	....	....	.65	.61	.61	.62	.63	....	.60	....	....	....	.60	.60	.60	....	....
17-17.9	.62	.65	.64	.63	.68	.65	.61	....	....	.65	.61	.61	.62	.63	....	.60	....	....	....	.60	.60	.60	....	....
18-18.9	.64	.65	.64	.63	.71	.65	.65	....	....	.68	.61	.61	.62	.63	....	.60	....	....	....	.60	.60	.60	....	....
19-19.9	.69	.69	.64	.67	.75	.70	.69	....	....	.72	.61	.65	.62	.62	....	.60	....	....	$0.60	.64	.64	.61	$0.60	....
20-20.9	.73	.73	.64	.72	.79	.76	.74	....	....	.75	.65	.69	.62	.67	....	....	....	....	.60	.69	.69	.62	.60	....
21-21.9	.78	.78	.64	.76	.82	.81	.78	....	....	.79	.69	.73	.62	.72	$0.63	....	....	....	.64	.74	.74	.66	.60	....
22-22.9	.82	.82	.69	.81	.86	.86	.82	....	....	.82	.73	.77	.66	.76	.63	....	....	....	.68	.79	.78	.70	.63	....
23-23.9	.86	.86	.75	.85	.89	.92	.86	$0.71	....	.86	.78	.82	.71	.81	.67	....	....	....	.71	.84	.82	.74	.67	....
24-24.9	.90	.90	.80	.90	.93	.97	.90	.77	....	.89	.82	.86	.75	.85	.72	....	....	....	.75	.89	.86	.78	.71	....
25-25.9	.95	.95	.86	.94	.96	1.02	.95	.82	....	.93	.86	.90	.80	.89	.77	....	....	....	.79	.94	.90	.82	.75	....
26-26.9	.99	.99	.91	.99	1.00	1.08	.99	.88	....	.96	.90	.94	.84	.94	.82	....	....	....	.83	.99	.95	....	....	....
27-27.9	1.03	1.03	.97	1.03	1.04	F.O.B.	1.03	.94	....	1.00	.94	.98	.89	.98	.87	....	$0.83	$0.92	.87	1.04	.99	....	....	....
28-28.9	1.07	1.07	1.02	1.07	1.07	Pipe Line	1.07	.99	....	1.03	.98	....	.93	1.02	.91	....	.86	.96	.91	1.09	1.03	....	....	....
29-29.9	1.10	1.10	1.07	1.11	1.10	....	1.10	1.04	F.O.B.	1.06	1.02	....	.98	1.06	.96	....	.90	.99	.95	1.14	1.07	....	....	....
30-30.9	1.14	1.14	1.12	1.15	1.14	....	1.14	1.09	Ship	1.09	....	....	1.02	1.10	1.01	....	.94	1.02	.99	1.19	1.11	....	....	....
31-31.9	....	....	....	....	1.17	....	1.17	1.14		....	....	....	1.07	1.14	1.05	....	.98	1.06	1.02	1.24	....	....	....	....
32-32.9	....	....	....	....	1.20	....	1.20	1.19		....	....	....	1.11	1.18	1.09	....	1.02	1.09	1.06	1.29	....	....	....	....
33-33.9	....	....	....	....	....	....	....	1.24	$1.21	....	....	....	1.15	1.22	1.14	....	1.06	1.13	1.10	1.34	....	....	....	$1.12
34-34.9	....	....	....	....	....	....	....	1.29	1.25	....	....	....	1.20	1.26	1.19	....	1.10	1.16	1.14	....	....	....	....	1.17
35-35.9	....	....	....	....	....	....	....	1.34	1.29	....	....	....	1.24	....	1.23	....	1.14	1.20	....	....	....	....	....	1.21
36-36.9	....	....	....	....	....	....	....	1.39	1.33	....	....	....	1.28	....	1.27	....	1.18	1.23	....	....	....	....	....	1.25
37-37.9	....	....	....	....	....	....	....	1.44	1.37	....	....	....	1.33	....	1.31	....	1.22	1.26	....	....	....	....	....	1.29
38-38.9	....	....	....	....	....	....	....	1.49	....	....	....	....	1.37	....	1.36	....	1.25	1.30	....	....	....	....	....	1.33
39-39.9	....	....	....	....	....	....	....	1.54	....	....	....	....	1.42	....	....	....	1.29	1.34	....	....	....	....	....	1.38
40-40.9	....	....	....	....	....	....	....	1.59	....	....	....	....	1.46	....	....	....	1.33	1.37	....	....	....	....	....	....
41-41.9	....	....	....	....	....	....	....	....	....	....	....	....	1.50	....	....	....	1.37	1.40	....	....	....	....	....	....
42-42.9	....	....	....	....	....	....	....	....	....	....	....	....	1.54	....	....	....	1.41	1.44	....	....	....	....	....	....
43-43.9	....	....	....	....	....	....	....	....	....	....	....	....	1.59	....	....	....	1.45	1.47	....	....	....	....	....	....
44-44.9	....	....	....	....	....	....	....	....	....	....	....	....	1.63	....	....	....	1.49	1.51	....	....	....	....	....	....
45-45.9	....	....	....	....	....	....	....	....	....	....	....	....	1.67	....	....	....	1.53	1.54	....	....	....	....	....	....
46-46.9	....	....	....	....	....	....	....	....	....	....	....	....	1.71	....	....	....	1.57	1.57	....	....	....	....	....	....
47-47.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.61	....	....	....	....	....	....	....
48-48.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.64	....	....	....	....	....	....	....

CRUDE OIL PRICE SCHEDULES

MID-CONTINENT GRAVITY SCALE PRICES—Posted October 11-13, 1938

(Some fields of Mid-Continent have flat price postings, and are shown separately)

Gravity	[7]Okla.-Kans.	[10]North La.-Ark. 10-17-40	[9]Atlanta, Ark. 10-17-40	North & W. Central Tex.	East Central Tex.	Gray Co. Tex.	Carson, Hutchinson Co. Tex.	[1]Tomball, Tex. Type	West Tex.-New Mex.	[2]Gulf Coast (Tex.-La.) 10-2-39	[3]Some La. Gulf Areas 10-2-39	Jennings, La.	[4]Anahuac, Tex. Type 10-2-39	[5]Refugio, Tex. Type 10-2-39	[6]Mirando, Tex. Type 10-2-39	[8]Salt Creek, Wyo. (except Tensleep)
19–19.9	.....	.....	.....	.....	.....	.....	.....	.....	*$0.53	*$0.86	*$0.86	.....	*$0.81	*$0.91	*$0.86	.....
20–20.9	$0.60	.....	.....	.....	.....	.....	.....	.....	.55	.88	.88	.....	.83	.93	.88	$0.70
21–21.9	.63	.....	.....	.....	.....	.....	.....	.....	.57	.90	.90	.....	.85	.95	.90	.72
22–22.9	.66	.....	.....	.....	.....	.....	.....	*$0.95	.59	.92	.92	.....	.87	.97	.92	.74
23–23.9	.69	.....	.....	.....	*$0.78	.....	.....	.97	.61	.94	.94	.....	.89	.99	.94	.76
24–24.9	.72	*$0.73	*$0.63	*$0.71	.80	.....	.....	.99	.63	.96	.96	.....	.91	1.01	.96	.78
25–25.9	.75	.75	.65	.73	.82	.....	.....	1.01	.65	.98	.98	.....	.93	1.03	.98	.80
26–26.9	.78	.77	.67	.75	.84	.....	.....	1.03	.67	1.00	1.00	.....	.95	1.05	1.00	.82
27–27.9	.81	.79	.69	.77	.86	.....	.....	1.05	.69	1.02	1.02	.....	.97	1.07	1.02	.84
28–28.9	.84	.81	.71	.79	.88	*$0.72	*$0.67	1.07	.71	1.04	1.04	.....	.99	1.09	1.04	.86
29–29.9	.87	.83	.73	.81	.90	.74	.69	1.09	.73	1.06	1.06	.....	1.01	1.11	1.06	.88
30–30.9	.90	.85	.75	.83	.92	.76	.71	1.11	.75	1.08	1.08	.....	1.03	1.13	1.08	.90
31–31.9	.92	.87	.77	.85	.94	.78	.73	1.13	.77	1.10	1.10	*$0.87	1.05	1.15	1.10	.92
32–32.9	.94	.89	.79	.87	.96	.80	.75	1.15	.79	1.12	1.12	.89	1.07	1.17	1.12	.94
33–33.9	.96	.91	.81	.89	.98	.82	.77	1.17	.81	1.14	1.14	.91	1.09	1.19	1.14	.96
34–34.9	.98	.93	.83	.91	1.00	.84	.79	1.19	.83	1.16	†1.16	.93	1.11	1.21	1.16	.98
35–35.9	1.00	.94	.84	.93	1.02	.86	.81	1.21	.85	1.18	.....	.95	1.13	1.23	1.18	1.00
36–36.9	1.02	.95	.85	.95	1.04	.88	.83	1.23	.87	1.20	.....	.97	1.15	1.25	1.20	1.02
37–37.9	1.04	.96	.86	.97	1.06	.90	.85	1.25	.89	1.22	.....	.99	1.17	1.27	1.22	1.04
38–38.9	1.06	.97	.87	.99	1.08	.92	.87	1.27	.91	1.24	.....	1.01	1.19	1.29	1.24	1.06
39–39.9	1.08	.98	.88	1.01	1.10	.94	.89	1.29	.93	1.26	.....	1.03	1.21	1.31	1.26	1.08
40 & Up	1.10	.99	.89	1.03	1.12	.96	.91	1.31	.95	1.28	.....	1.05	1.23	1.33	1.28	1.10

* Minimum price and applies also to purchases of lower gravity.

† Maximum price and applies also to purchases of higher gravity.

[1] Tomball, Raccoon Bend (Deep) and Satsuma.

[2] Includes Amelia, Barbers Hill, Big Creek, Blue Ridge, Clear Lake, Cotton Lake, Esperson, Fannett, Goose Creek, Hankamer, Lovells Lake, Lochridge, Moore, Mykawa, Nome, Orange, South Liberty, Spindle Top, Sugar Land, Thompsons, Webster, Hastings, South Houston and West Beaumont.

[3] Includes Berwick Bay, Bay St. Elaine, Caillou Island, Chacahoula, Dog Lake, Edgerly, Four Isle, Gillis, Grand Bay, Hackberry, Horseshoe Bayou, Iberia, Jefferson Island, Lake Barre, Lake Felto, Leesville, Port Barre, Starks, Timballer Bay, Quarantine Bay, and Vinton fields.

[4] Anahuac, Dickinson, Gillock, Cedar Point, Fairbanks, Turtle Bay, Hull, Orange, Pierce Junction, Batson, Caplen, Humble, North Dayton, Saratoga, Sour Lake, South Esperson, Spindle Top, West Orange, Thompson (deep), and Raccoon Bend (shallow) fields.

[5] Includes Saxet, E. White Point, Greta, O'Connor McFadden, Taft, Plymouth and Tom O'Connor fields.

[6] Includes Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields.

[7] Oklahoma Pipe Line and Magnolia schedules.

[8] Includes La Barge, Midway Dome, Dutton.

[9] Also Buckner, Magnolia, Schuler (Jones Sand), Village.

[10] Add 10 cents for Bunkie, Eola, Olla.

Mid-Continent Flat Prices

	Flat Price	Date Posted
Arkansas:		
Big Creek, Dorcheat, McKamie	$0.95	10–17–40
Smackover heavy	0.73	10–12–38
Louisiana:		
Cotton Valley	1.10	10–17–40
Garden Island	1.24	10–12–38
Gibson	1.04	10–11–38
Lafitte	1.04	10–12–38
Rodessa, Shreveport	1.05	10–17–40
Texas:		
Cayuga	.78	10– 2–39
East Texas	1.10	10–12–38
Talco	.65	10– 2–39
Livingston, Cleveland	1.10	10–12–38
Van	.93	10–12–38
Pettus	1.29	10–12–38
Pecos County	.78	10–12–38
Pecos Shallow	.65	10–12–38
Luling	.87	10–12–38
Lytton Springs	.99	10–12–38
Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski	.96	10–11–38
Flour Bluff-Jim Wells Co	1.23	10–11–38
Guerra	1.06½	5– 8–39
Seabreeze, Willow Slough, La Belle, Hardin, S. China	1.10	9–14–39
Clay Creek	.85	10–13–38
Conroe	1.27	10–11–38
Long Lake	1.08	10–19–38

Middle West Prices

Lima, Ohio	$0.90	10–13–38
Illinois, old fields	1.00	8–23–40
Illinois Basin	1.15	8–21–40
Lake Centralia-Salem, Illinois	1.15	8–21–40
Princeton, Indiana	1.00	8–23–40
Sw. Ind.-Se. Ill.: N. Griffin, S. Griffin, Phillipstown, New Harmony, Storms, Iron	1.15	8–21–40
Western Kentucky	1.05	8–21–40
Birk City, Western Kentucky	1.05	8–21–40
Kentucky River, Eastern Ky	1.20	8–21–40
Big Sandy River, Eastern Ky	1.12	8–21–40

Michigan Prices

	Flat Price	Date Posted
Central (Basin):		
Porter, Greendale, Crystal, Wise, Midland, Vernon	$1.12	8–24–40
Buckeye, Edenville, Bentley, Beaverton	1.10	8–24–40
Freeman, Sherman, Redding	1.07	8–24–40
Arenac, Ogemaw, W. Branch	.92	8–24–40
Southwest (Shallow):		
Allegan, Kent Counties	1.18	8–24–40
Van Buren Co., Bloomingdale	1.08	5– 1–40
Adams	.95	8–24–40
Clare	.81	8–24–40

Rocky Mountain States Prices

Colorado:		
Canon City, Ft. Collins, Wellington, Moffat and Florence	$0.90	10–11–38
Iles, Light	.98	10–11–38
Iles, Heavy	.92	10–11–38
Montana:		
Cat Creek	1.10	10–11–38
Cut Bank	1.00	1– 1–40
Sunburst	.80	1– 1–40
New Mexico:		
Artesia	.77	10–11–38
Hogback	1.00	10–11–38
Wyoming:		
Big Muddy	.98	10–11–38
Byron	.55	10–11–38
Dry Creek	.92	10–11–38
Elk Basin	.90	10–11–38
Frannie, Light	.55	10–11–38
Frannie, Heavy	.42	10–11–38
Garland	.50	10–11–38
Grass Creek, Light	.90	10–11–38
Grass Creek, Heavy	.40	10–11–38
Hamilton Dome	.35	10–11–38
Lance Creek	.77	10–11–38
Mill Creek	.72	10–11–38
Oregon Basin	.40	4–20–40
Osage	1.30	10–11–38
Poison Spider	.59	10–11–38
Rock Creek	1.00	10–11–38
Tensleep	.646	10–11–38

Eastern States Prices

	Flat Price	Date Posted
Bradford-Allegany	$1.85	8–28–40
Sw. Pa. Pipe Line	1.50	8–28–40
Eureka Pipe Line, W. Va	1.44	8–28–40
Corning Grade, Ohio	1.12	11– 4–39
Buckeye Crude, Ohio	1.55	7–12–40

Major Price Changes

	Penna. Grade	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19, 1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
Aug. 11, 1933	Up 10	.....	.....
Aug. 24, 1933	.....	Up 10	.....
Aug. 30, 1933	Up 15	.....	.....
Sept. 6, 1933	Up 10	Up 10	Up 15
Sept. 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
Nov. 6, 1934	Cut 25	.....	.....
Dec. 6, 1934	Cut 25	.....	.....
Jan. 4, 1935	Up 15	.....	.....
Feb. 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
Aug. 29, 1935	.....	.....	Cut *1
Sept. 6, 1935	Up 5	.....	.....
Oct. 29, 1935	Up 15	.....	.....
Nov. 1, 1935	.....	.....	Up *28
Nov. 18, 1935	Up 15	.....	.....
Dec. 6, 1935	.....	.....	Up *9
Jan. 9, 1936	.....	Up 10	.....
Jan. 13, 1936	Up 15	.....	.....
Mar. 7, 1936	.....	.....	Up *18
Dec. 28, 1936	Up 12	.....	.....
Jan. 28, 1937	.....	Up 12	.....
Feb. 24, 1937	Up 10	.....	.....
June 7, 1937	Up 15	.....	.....
Sept. 1, 1937	Cut 22	.....	.....
Oct. 12, 1937	Cut 25	.....	.....
Dec. 1, 1937	Cut 15	.....	.....
Mar. 7, 1938	Cut 17	.....	.....
June 13, 1938	Cut 25	.....	.....
Sept. 1, 1938	Cut 12	.....	.....
Oct. 11, 1938	.....	Cut 20	.....
Jan. 21, 1939	Up 12	.....	.....
Feb. 2, 1939	Up 8	.....	.....
Mar. 6, 1939	Up 12	.....	.....
Oct. 6, 1939	Up 25	.....	.....
Nov. 1, 1939	Up 15	.....	.....
Dec. 1, 1939	Up 10	.....	.....
Jan. 1, 1940	Up 25	.....	.....
Feb. 1, 1940	.....	.....	Cut *7
May 22, 1940	Cut 25	.....	.....
June 18, 1940	Cut 25	.....	.....
July 12, 1940	Cut 25	.....	.....
Aug. 28, 1940	Cut 15	.....	.....

* Signal Hill 26 gravity.

Crude Production Taxes

In all states other than Texas, levies are severance taxes, collected in lieu of all other taxes, with exception of small special assessments made in Louisiana and Oklahoma, as shown below.

In Texas, any political subdivision as well as the state has power to tax, and state itself levies special taxes in addition to gross production tax, as shown below.

Arkansas—2.6 percent of gross market value.

California—.66443 mills per barrel of oil produced and 17.39 cents an acre on proved lands.

Louisiana—From 4 to 11 cents a barrel, depending upon gravity, average being 7½ to 8 cents; in addition, special taxes may be levied on well equipment, bringing total tax to average around 8¾ cents a barrel.

Montana—Two percent of gross value at well and ⅝ of 1c per barrel.

New Mexico—Severance tax of 2 percent on oil and gas.

Oklahoma—Five percent of gross value less royalty interests; in addition, surplus warehouse stocks may be taxed by counties.

Texas—Gross production tax is 2¾ cents a barrel or 2¾ percent, whichever is higher, and averaged 2.94 cents in 1939. In that year, total tax on average barrel produced was, however, 9.23 cents, having included following levies: gross receipts 0.14 cents, regulatory 0.19 cents, state ad valorem 0.98 cents, other state taxes 0.62 cents, and local ad valorem 4.30 cents.

Wyoming—Production tax based upon state and county assessments.

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●

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★ Overhead Valves

★ Water-Cooled Exhaust Manifold

★ Dual Ignition

★ Operates on Gasoline, Natural Gas or Butane

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U. S. FIELD OPERATIONS

Illinois

Complete Gallatin County Wildcat in Three Pays

The Carter Oil Company's much discussed Gallatin County wildcat, R. M. York 1, SE SE SW 33-7s-8e, near Omaha, has cemented casing to test three pays, Biehl at 1310 feet, Palestine at 1669-1742 feet, and Hardinsburg at 2107 feet. The company plans to produce the well from the three formations, similar to the completion program followed in the triple-pay Loudon pool in Fayette County. York 1 found six oil shows, but those in the Bethel, McClosky and a shallow horizon were considered non-commercial.

Just 1¼ miles north of York 1, Roy Powers' West 1, The Carter Oil Company farmout, SW NW SE 28-7s-8e, was abandoned as dry at 2955 feet in St. Louis lime with no shows reported. The county's other wildcat, Exchange Oil Company's O. Evans 1, NE NE NW 20-8s-8e, appeared to be dry at 3043 feet.

A Franklin County wildcat, E. S. Adkins' Orient Coal Company 1, NE SW SE 24-6s-2e, near the town of Benton, will test two pays, one in the Kinkaid and the other in the Tar Springs after drilling to the St. Louis at about 3100 feet. The Kinkaid show was at about 1740 feet, and the Tar Springs at 2111 feet. Observers believed the test would open a new field. In the county's only productive area, the Thompsonville field, Trares Brothers' Downen 1, SW NW SW 26-7s-4e, first test to explore the St. Louis lime in that area, was abandoned at 3455 feet following a drill-stem test which showed salt water.

A possible pool opener in Hamilton County, Kingwood Oil Company's Williams 1, CW½ NE NE 3-4s-6e, was waiting on cement after a squeeze job, following swabbing tests in which it made 12 barrels of oil and 24 barrels of water an hour from McClosky at 3480 feet. It is five miles from production. Wood River Development Company's A. J. Lawrence 1, another Hamilton wildcat, CSW NE NW 26-4s-7e, was abandoned after making a small amount of oil and considerable water in swab tests of the McClosky.

The county's Hoodville field was extended in two directions. North of the field ¼ mile, Exchange Oil Company's John Stelle 1, SW SE 27-5s-6e, was swabbing oil into tanks from Benoist pay at 2950-62 feet, and ½ mile south of production, The Texas Company's Edwards 1, NW NE NE 3-7s-6e, was initialed at 400 barrels in 24 hours from the Benoist, one of the best gauges ever accorded a Hamilton County completion.

In Jasper County, Continental Oil Company plugged back Toland 1, SW 34-7n-8e, from 3242 to 3020 feet for an additional test of the McClosky. At the 3242-foot depth, the well was acidized with 1000 and 5000 gallons and swabbed 80 barrels of oil and no water in 9½ hours, but then began making water which increased hourly, necessitating the plugback. The test is 12 miles from production and about 4 miles east of the Effingham County line.

A Wayne County wildcat may open another field: H. H. Weinert, Inc.'s Bright 1, NW NW NE 2-2s-7e, a mile east of the West Fairfield pool and a mile west of Fairfield, was being cleaned out following acid treatment in McClosky lime at 3338 feet. The test is believed by some observers to be on a structure separate from that of the West Fairfield pool. A successful completion may start a drilling campaign in Fairfield.

An outpost to the Lancaster field of northern Wabash County, B. E. Jacobs et al's F. E. Fornoff 1, SW NE SE 27-2n-13w, over the line in Lawrence County, was testing three feet of McClosky saturation.

Superior Oil Company was cleaning out Fewkes 1, north outpost of the Albion field, Edwards County, Section 18-2s-11e, and will complete in about 10 feet of McClosky pay from 3204 feet. On the west edge of the pool, Watkins' Conover 1, NE SE SW 13-2s-10e, recovered 12 feet of saturation in the upper McClosky from 3146 feet, but was drilling on to the lower McClosky which recently was discovered to be prolific in the area.

John C. Powell's Rinicker 1, Shelby County semi-wildcat in SE 22-10n-5e, near Stewardson, was cleaning out following a squeeze job. After the first plug was drilled to test an Aux Vases show, water was swabbed. The test is near the county's only producer, completed over a year ago. Another wildcat, Paul Doran's Yakel-Gallagher 1, SW SE NW 33-10n-4e, was drilling below 1600 feet, and Ginther Fox 1, NW SE NW 34-10n-4e, was to be spudded with cable tools.

The first Trenton test in the Sandoval field of Marion County, B. E. Martin's Robinson 1, SE SW 4-2n-1e, was temporarily abandoned at 4396 feet in Trenton lime after unsuccessfully testing shows at 4280 and 4367 feet. The test was both shot and acidized. A new Marion County wildcat, Kingwood Oil Company's Sam Lowe 1, CW½ SE NW 18-4n-3e, near Kinmundy, was drilling at 1045 feet. It is to be a McClosky test. The Texas Company's outpost test to the Lake Centralia-Salem and Tonti fields, F. E. Donahue 1, CN½ NE SW 3-2n-2e, was coring the McClosky at 2204 feet.

In Clinton County, there were two Trenton tests active, one in the Centralia pool and the other in the old Carlyle field. At Centralia, Allen Borton's Storer 1, a townsite test, had run tubing and was awaiting an acid treatment. Bottom is 4100 feet. The well had been shot with 50 quarts and swabbed about 6½ barrels of oil in three hours. At Carlyle, Hughes Petroleum Company's Schafly, SE NE SE 3-2n-3w, has resumed operations and was coring the Trenton below 3470 feet.

G. H. Blankenship's Perry County wildcat, E. F. Malinsky 1, NW NW NE 24-4s-2w, 8 miles northeast of Pinckneyville, was drilling at 1104 feet, nearing the Cypress. It is the only operation in the county.

Fayette County wildcats included: D. B. Lesh's Hayes 1, NW SW 35-6n-2e, a west outpost to the St. James field, drilling by tools at 1575 feet, Riley's Black 1, NW SW 25-6n-2e, shut down on orders at 1624 feet, with Glen Dean at 1476 feet and Cypress at 1608 feet; Turner's Pruitt 1, SW NW 7-5n-3e, drilling below 1720 feet after finding the Weiler dry, and John Pummil's Isbell 1, NW NE SW 33-8n-1w, cable-tooling at 1201 feet.

Possibility of a deep drilling program in the Patoka field, Marion County, was indicated when representatives of Adams Oil & Gas Company and Felmont Corporation met with the field's royalty owners to attempt and effect unitization agreements. Adams is the principal operator in the field, which they discovered in January, 1937, first major strike in Illinois' new development. Present production is from the Cypress and Bethel. One Devonian test was drilled in the Patoka townsite, but was dry.

Indiana

Two Gibson County Wildcats Among Week's New Starts

About eight miles west of Princeton, central Gibson County, Lewis Production Company located Mrs. Effa K. Brady 1, N ESW 14-2s-12w, a mile west of W. C. McBride's Blair 1, abandoned last summer through a dry McClosky. Loma Oil Company is contractor.

Eight miles southwest of Owensville, Montgomery Township, Gibson County, A. W. Cherry and Barron Kidd set surface casing for Hall-Garrett 1, SW NW SW 31-2s-12w, 1¼ miles north of Continental Oil Company's Blood 1, which was abandoned after setting casing and testing water in the Cypress.

W. C. McBride, Inc., discoverer of the new McClosky pool south of Vincennes, Knox County, located John M. Breevort 1, CS½ NE NW 1-2n-11w, wildcat 4 miles north of production. The acreage originally was a farm-out from Kentucky Natural Gas Company to G. A. Tydings.

Meanwhile, the new pool chalked up its second failure, Dee Miller's Ed. Sannaman 2, CNE SW 24-2n-11w, which was bottomed at 1910 feet through McClosky that carried some saturation of poor porosity.

A Warrick County wildcat, ¼ mile north of Yankeetown, Yankeetown Development Company's Wilson Taylor 1, SW SW NW 10-7s-8w, reportedly picked up a slight oil show in the Cypress (Jackson) sand, topped at 1358

feet, and was deepening to test Barlow.

In northern Point Township, Posey County, Harry Lewis, Jr.'s Isaac Wolf 1, SW NE SE 25-7s-15w, was waiting on cement with casing set to an undisclosed horizon. Hole was bottomed at 2753 feet. It is the third test to set casing in this area and is about midway between the other two, which were abandoned after testing water.

A Gibson County wildcat a mile southeast of Owensville, Mohawk Drilling Company and Major Oil Company's John W. Harmon 1, NE SE SW 29-7s-6w, was drilling with rotary at about 1350 feet. The test is about a mile northeast of Major Oil Company's Simpson 1, small St. Louis-lime producer completed last April.

In the South Griffin field of north Posey County, Continental Oil Company's Mumford Realty Company B-1, SW NW NW 33-3s-13w, was a Cypress-sand completion at 2446-63 feet, initialing 70 barrels a day on pump after 40-quart shot.

A west outpost to the Heusler Dome field of Marrs Township, southeast Posey County, Harris-Stuart et al's Reis 1, SW SE NE 1-7s-12w, was coring for the Waltersburg.

Kentucky

Spud Test in Attempt to Extend Henderson Pool

South of production ½ mile in the new Jett-sand pool south of Hebbardsville, Henderson County, A. D. Schafer et al spudded Butler 1.

In Webster County, east of Iley Browning's Sellers 2, McClosky (Rosiclaire) completion, Snowden & McSweeney's A. M. Sutton 1 was drilling at 350 feet. In the same area, J. R. Powell was rigging up for Mrs. J. R. Ramsey 1.

About two miles east of Sebree, Big Four Oil & Gas Company located W. Chamberlain 1.

In Ohio County, two miles north of Pattyville, August Grewe Whittinghill 2, Section 17-N-35, was abandoned at 725 feet. Also abandoned was a McLean County test two miles southwest of Island, South Penn Oil Company's John Kirtley 1, Section 22-L-28, dry through the McClosky at 2012 feet.

Oklahoma

Langston Pool Has New Pay and Horizon in One Well

Hunton lime production in the Langston pool, Logan County, was extended ½ mile southwest at Mid-Continent Petroleum Corporation's Dodson (East) 1, SEc 11-17n-1w, while Misener sand proved a new horizon in this well. Previously making only 2 to 3 barrels per day from Wilcox sand at 5084 feet, operators set pipe at 5015 feet and perforated in Misener and Hunton zones. First 24 hours, flow gauged 100 barrels of 41.2-gravity oil, with successive runs of 81, 102, 100, 94 and 115 barrels. Misener sand was topped at 4865 feet and Hunton lime logged at 4870 feet. Gas gauged 500,000 feet per day. The Ohio Oil Company initially struck the Hunton zone this year at Knight 1, SE NE SW 12-17n-1w, completing a well for 16 barrels. Both Wilcox and Marshall zones are productive in Langston pool.

New gas horizons were proven in Cement pool, Caddo County, and North Okemah pool, Okfuskee County. Hugeley et al completed Wagner 2, SE NE SW 3-5n-9w, for 18,000,000 feet. Originally dry at 4332 feet, operators perforated with 10 shots in sand at 3598-3610 feet, and the test is estimated good for 30,000,000 feet. Operators could not open the well due to fire hazard in the Cement townsite. Noble-Olson zone was dry at 3304-22 feet, Upper Yule was topped at 3912 feet, Lower Yule at 4031 feet and Wade at 4271 feet. Rowe sand was absent.

The Texas Company opened Gilcrease-sand production in North Okemah pool at Martin 1, NEc 7-11n-10e, a southwest diagonal offset to the Hunton lime discovery. Hunton zone was dry at 3725 feet and hole was plugged to 3677 feet. Pay was perforated at 2957-90 feet with 33 shots and the well completed for 4,300,000 feet of gas per day. Cowan 1, SWc 5-11n-10e, discovery well, showed strong possibilities in that horizon although it was never tested.

Shell Oil Company extended Cromwell pay in Dill pool ¼ mile north at Curry 1, SWc NW 35-12n-8e, flowing 925 barrels of oil in 17½ hours. Hole is bottomed at 3594 feet and pay was squibbed with 30 quarts. I. T. I. O. Company staked location for Miller 2, NWc SW 35-12n-8e, a south offset to the Curry producer. Shell Oil Company is drilling at Curry 2, an east offset to the extension.

Cumberland Extended

The Pure Oil Company has apparently extended Cumberland pool ½ mile east in Bryan County at Park College 1 (200), SWc SE 27-5s-7e, which recovered 23 barrels of oil on running a swab every 2 hours. Hole was cleaned out and Bromide sand at 5111-18 feet shot with 10 quarts. It bridged at 4965 feet but operators cleaned out to 5106 feet. Excessive rains in the area delayed a potential test. The company completed Thomas 1 (202), NE SE NW 28-5s-7e, flowing 1496 barrels in 24 hours through a 1½-inch tubing choke. Second Bromide sand was topped at 4925 feet, and third Bromide at 5070 feet with hole bottomed at 5091 feet.

The Ohio Oil Company and Helmerich & Payne extended Southeast Braman pool at State 2, SW NE SW 16-28n-1w, establishing a pumping potential of 52 barrels of oil with 12 barrels of water in 24 hours. Second Wilcox sand was logged at 3628-67 feet.

Peters Oil Company and Norbla Drilling Company completed Osage 15, SE NW SW 16-22n-9e, for 10 barrels of oil and a show of water to open initial Arbuckle-lime production in the East Hominy pool. Pay was topped at 2636 feet and penetrated to 2661 feet. Some 4000 gallons of acid was applied. Same operators' Osage 2-83, SWc NE 29-20n-11e, old Sand Springs district, deepened from Bartlesville sand at 1953 feet to 2352 feet where 5-inch casing was cemented. Plugs will be drilled in Arbuckle lime, yet untested in this area. Norbla Drilling Company and Brookhaven Oil Company's Osage 1, NEc SW 6-22n-8e, moved in machine and was drilling to the Arbuckle lime. This wildcat is south of the Gilliland pool.

Kansas

Topeka-Lime Zone Extended Half-Mile in Krier Pool

Topeka-lime production was extended ½ mile southwest in Krier pool at George Johnston et al's Oeser 1, CE½ NE SW 30-16-11w, which pumped and flowed 328 barrels of oil in 24 hours. Hole was carried to 3293 feet in Lansing lime, topped at 3033 feet, and plug was cemented at 3025 feet. Casing was perforated at 2840-70 feet in Topeka lime, topped at 2630 feet, and treated with 1500 gallons of acid.

Barbara Oil & Gas Company's Angell "A" 1, CNE SE 10-33-14w, 4 miles west of Medicine Lodge pool, Barber County, reacidized Viola lime at 5048-78 feet with 6000 gallons. The wildcat flowed and swabbed 8 barrels of oil a day with a trace of water. Operators pulled casing and were deepening to test Arbuckle lime. Previously, the test was acidized with 2000 gallons and followed with an oil load, which left 2000 feet of oil standing in the hole.

Harrington & Loriaux opened a Mississippi-lime pool 2 miles southwest of Lost Springs pool in Marion County. Belton 1, SEc NE 30-17-4e, was completed on the pump for 15 barrels of oil and 300 barrels of water per day. Mississippi lime was topped at 2398 feet, and 6-inch casing cemented at 2405 feet. Pay showed at 2412-15 feet, and cement plug was drilled to 2417 feet.

R. W. Shields et al's Paxson 1, NEc 11-8-24w, west of Hill City in Graham County and 15 miles from nearest production, showed black oil in Kansas City-Lansing lime zone at 3610-3750 feet, but deepened to Arbuckle below 4100 feet without a show. Operators will plug back and test upper shows.

Marylyn Oil Company et al's Jackson 1, CE½ NE NW 1-27-13w, 1½ miles northeast of Iuka pool, Pratt County, cemented 94 feet of 5-inch liner at 4316 feet in Arbuckle lime, topped at 4315 feet. Hole filled 1200 feet with water from Simpson, topped at 4201 feet, and fluid increased at 4330-34 feet. When deepened to 4339 feet, hole filled 350 feet with 38-gravity oil and 1500 feet with water. With packer set at 4316-19 feet, it swabbed 1 barrel of oil per hour and no increase occurred after jetting with 500 gallons of acid and perforating with 11 shots at 4227-31 feet. At 4342 feet, oil increased to 400 feet and water decreased to 100 feet. Packer was again set at 4317 feet and when swabbed to bottom, 150 feet of fluid, 50 percent waterr, entered. Operators reacidized with 1000 gallons and swabbed 5 hours

to recover all acid 500 feet from top. Liner will be recemented.

Douglas County Gas Pool

A shallow gas pool was opened in Douglas County at Douglas County Oil & Gas Syndicate et al's Gago 2, NEc SE 11-13-20e, 10 miles north of Baldwin gas pool. At 642 feet, it tested 800,000 feet and increased to 1,000,000 feet at 685 feet. Eight-inch casing will be under-reamed at 700 feet.

Three miles east of Ritz-Canton pool, McPherson County, E. K. Carey Drilling Company perforated Mississippi lime at 2897-2910 feet with 32 shots to obtain a 3,000,000-foot gasser. Previously, the wildcat drilled to 3425 feet. Pay was topped at 2896 feet, and cement plug set at 2917 feet.

Harbar Drilling Company completed Ray 1, SE SW NE 32-5-20w, a north offset to the discovery in Phillips County, establishing a maximum potential of 3000 barrels daily from a draw-down reading of 3474 barrels. Basal sand is pay at 3573-3604 feet.

Derby Oil Company extended Harzman pool two locations south at Bernstorf-Janke 1, NW NE 33-16-11w, which swabbed 35 barrels of oil per hour for two hours 500 feet off bottom. Arbuckle lime was topped at 3360 feet, and plugs drilled to 3358 feet. Operators moved rotary rig to Bernsdorf-Janke 2, SE NW NE 33-16-11w.

Forest City Basin

Falls City Defined North; Running 3300 Barrels Daily

Falls City pool, Richardson County, celebrated its first anniversary on November 1 with two developments highlighting the week's activity. Skelly Oil Company defined production at Prichard 1, CSE NW 29-1n-16e, ½ mile south of the pool, topping Hunton lime structurally low at 2365 feet. At 2550 feet, drill remained in Hunton lime, but operators will deepen to test Viola lime.

Twenty producers have been completed in this pool and daily average production last week averaged 3300 barrels. Of this total, Skelly Oil Company is tanking 1200 barrels per day from its wells. Falls City is now defined to the north, west, south and northeast. Producers are seeking larger outlets for their crude as the pool is capable of 10,000 barrels daily.

Nemaha Development Company's Evans 1, CNW NE 32-5n-15e, topped Hunton lime at 2318 feet, more than 100 feet higher than other tests in Nemaha County, but recovered a dry section of lime. It is deepening with bit 25 feet in Viola lime, and nothing showing.

Three new completions were on record for Falls City. Harry Harper et al's Sibbernson 2, SE NW NW 20-1n-16e, treated Hunton lime at 2222-45 feet with 2000 gallons of acid. On pump it made 792 barrels per day for three days. Same operators' Sibbernson 3, SW NE NW 20-1n-16e, initially treated Hunton lime at 2223-37 feet with 1000 gallons of butane to increase fluidity of the oil. Following up with 2000 gallons of acid, the well pumped 793 barrels a day for two consecutive days. Pawnee Rovalty Company's Sandrock 1, NW SE NW 20-1n-16e, pumped and flowed 800 barrels of oil in 24 hours, after acidizing with 2000 gallons at 2211-60 feet.

E. J. Shaffer defined Shubert pool, Richardson County, north as Koetke 1, C SE NW 29-3n-16e, logged dry lime at 2485-2561 feet and was plugged. I. T. I. O. Company was running 200 barrels per day from the lone producer.

E. V. Jackson and others further defined Falls City pool south as Conklin 1, CNE NE 30-1n-16e, west offset to the Prichard failure, was plugged as dry in Hunton lime at 2579-2632 feet. The structure now stands as an elongated dome extending in a northwest-southeast direction 2½ miles long. Further exploration in these trends may lengthen this feature.

Clampitt, Richards and Ogden plugged Lambert 1, NEc SW 26-4n-15e, 11 miles southeast of Auburn in Hunton lime, topped at 2638 feet and cored to 2732 feet.

In Otoe County, H. A. Risk et al's McCord 1, NW SW SW 15-8n-14e, in the Nebraska City townsite, was temporarily abandoned at 724 feet.

Wildcatting spread to Lancaster County, Nebraska, as Augus & Krueger drilled below 600 feet at Roe 1, NE SE SW SW 5-7n-7e. McAlpine et al, in the town of Salem, Richardson County, was rigging up a machine for Tiehen 1, CS½ SE SW 3-1n-15e.

Eckhart et al's Ast 1, NE SW NW 6-1n-14e, a mile northwest of Falls City, cemented 60 feet of 10-inch surface pipe and was deepening. Harry Harper et al's Sibbernson 4, SW NW NW 20-1n-16e, was drilling below 2200 feet.

Two tests were started in the Polo gas field, Caldwell County, and one wildcat was spudded. H. L. Scott's Zimmerman 1, SWc NW 30-55n-28w, spudded with machine. In the Polo area, O. M. Evans was drilling Minger 1, SWc NW 32-55n-28w, and H. L. Scott had machine at Smith 1, SEc 24-55n-29w. C. C. Browning plugged Culver 1, NE SE NW SE 18-39n-29w, Bates County, at 630 feet.

In Brown County, Kansas, S. L. Parks abandoned location for Rather 1, CN½ NW SW 12-2s-16e.

North Texas

Montague County Wildcat Indicates Bend Pay Pool

Partial production test given Walter Gant et al's Will Laird 1, Southwestern Montague County wildcat that has been idle since late August at 6651 feet, heralds the opening of a new oil pool in the Fort Worth Syncline from the Bend conglomerate. The test was yielding ½ bailer oil and mud per hour while unloading the hole with machine when operations were halted for repairs. The 7-inch pipe, cemented at 6641 feet, was perforated with 24 shots opposite saturation in conglomerate at 5844-58 feet. The 4800-foot Strawn is also a prospective producing horizon.

Britt Cranfill and C. E. Rodgers' McKay 1, 2¾ miles south of the above wildcat and in Wise County, was drilling at 5760 feet in Bend and was due to run pipe upon reaching base of the conglomerate near the 5860-foot level. The original hole was plugged back from 6067 to 5020 feet to side-track section of drill pipe.

Basal Strawn became a new producing zone for the Hull-Silk field, Archer County, when Ed. Peterson and J. A. McCarty's Wilson 36-B, NEc J. T. OReilly Survey, flowed 623 barrels of oil in 12 hours after acidinzing saturation at 4545-63 feet, with the hole bottomed in shale at 4572 feet. The gauge was taken through ¾-inch choke on tubing, with pressure on casing dropping from 900 to 400 pounds and tubing pressure receding from 800 to 260 pounds. Thurmond Oil Company and R. C. Lipscomb's Wilson 9, NEc of E. Hall Survey, accounted for the third Bend producer for the field in recording an initial flow of 172 barrels of oil in 3 hours through open tubing after using 3000 gallons of acid in saturated zone at 4598-4635 feet. Cochran and Cain's Wilson 1, NWc Lot 3, ATNCL Section 44, outpost for the northeast portion of the field, tested water in drilling to 4800 feet, with 7-inch pipe at 4689 feet. It is slated to be plugged back to test through casing perforations opposite oil saturation passed up in the regular Strawn series. Magnolia Petroleum Company's Parrish 15, southeast outpost, yielded water with trace of oil and gas in running formation tester at 4066-77 feet, and was drilling at 4690 feet to try for Bend production.

W. B. Hamilton et al's Cartwright 22, third deep test for the Anarene shallow oil district, Archer County, logged nominal oil saturation at 4789-4824 feet in Bend, topped at 4759 feet, and was drilling at 4880 feet.

E. C. Norwood and King Oil Company's Hapgood 2, northeast of the Hapgood pool discovery, Eastern Clay County, encountered oil saturation in the Bend conglomerate at 5966 feet, and was coring at 5970 feet. Phillips Petroleum Company's Hapgood 1, west offset to the producer, was drilling at 5715 feet, and R. C. Lipscomb et al's Hapgood 1, southeast outpost, was drilling at 5630 feet. These tests are the first made since the completion of the discovery last July at 5972-84 feet, establishing a producing depth record for the district.

Ringgold Extension Try Has Water

Walter Gant et al's Stine 1, situated 1⅓ miles west of production in the Ringgold pool, tested small show of oil with hole full of water after plugging back from 5673 to 5646 feet. L. T. Burns et al's Calloway 1, Central Clay County wildcat, was due to be plugged at 6125 feet after drill-stem test at 5985-6000 feet yielded 40 feet of oil-cut mud. It was deepened from 5356 feet, where operations were halted in September, 1939.

Seitz-Comegys & Seitz, Inc.'s Harris 1, eastern Montague County wildcat on the Hardy geophysical prospect, was drilling hard shale at 6760 feet, having logged top of Bend at 6551 feet. Streaks of conglomerate in the latter zone did not warrant testing. Amon G. Carter et al's Allen 1, western Denton County wildcat and in the same general trend, was drilling shale at 4580 feet.

Expansion of the Fargo pool, northwestern Wilbarger County, northwest for the fourth producer from the Cisco sand was assured when Amerada Pe-

troleum Corporation's Dodson 1, near NE SE SE H&TC Section 34, Block 15, logged 32-foot section of oil-saturated sand, topped at 3246 feet. Hole is bottomed in shale at 3279 feet, with 5½-inch pipe cemented at 3247 feet due to shale overlying the pay. Pipe was landed within an elapsed period of 10 days. The company's next test will involve A. J. Folley 1, near SWc NW Section 36. O. M. Stidham & Son's Watts 1, CNE SW Section 64, 3 miles northeast of the Fargo pool, was drilling at 4080 feet after being idle at 3144 feet since last June.

In Cottle County, Ramsey Petroleum Corporation's Lynch 1, SW Section 66, J. Poitevent Survey, 10 miles southwest of Paducah, yielded trace of oil and gas with salt water on drill-stem test in porous conglomerate at 5003-23 feet, and was drilling at 5690 feet in shale and lime. Humble Oil & Refining Company's Matador 1-C, projected Ordovician test for Motley County, was fishing.

Ellenburger production will be sought by Magnolia Petroleum Company's Thom 4, in the Archer County portion of the K-M-A field, after showing for a producer on drill-stem test in the regular Strawn at 3840-90 feet. The company's Thom 3, on east side of the 240-acre lease, was completed last June as the second Ordovician well for the field, and was pumping 50 barrels oil and 54 barrels water daily. Numerous Ellenburger failures have caused K-M-A operators to lose interest in the 4400-foot oil zone, although such wells have an allowable of 77 barrels daily.

Texas Panhandle

Anadarko Basin Test Started in Hansford County

The first wildcat authorized for the Anadarko Basin in the northeast portion of the Texas Panhandle since the five-county district received a major lease play last summer involves a geophysical prospect in east central Hansford County. Indian Territory Illuminating Oil Company is starting operations on Chas. O'Loughlin 1, C SE W. C. Ry. Section 2, Block 2, 15 miles northeast of Spearman. The initial contract calls for a 5500-foot test, although it is likely to be carried deeper in order to drill through the Permian. The lease play in the basin is predicated on Ordovician production prospects, and the participants took 10-year commercial leases in order to defer exploratory work.

The prolific Bowers ranch sector of Gray County contributed an interesting development plan when The Texas Company's J. B. Bowers 16, SWc NE H&GN Section 63, Block B-2, gauged 9,750,000 feet of gas, with 175 pounds rock pressure, in deepening from regular pay at 3265 feet to granite wash at 3275-3321 feet. It was originally completed in September, 1930, and the elevation is 3146 feet. Numbers of wells in the area have produced more than 1,000,000 barrels of oil each from the erratic granite wash beds near sea level depth.

Revise Rotan Rules

The Texas Railroad Commission has revised the method of allocation in the Rotan field, Fisher County, and hereafter wells will be prorated on a straight per-well basis, after deductions are made for marginal allowances.

West Texas

Pecos County Strike Promises Rapid Development Campaign

The Simpson sand member of the Ordovician series recorded a prolific producer October 30 in northern Pecos County, establishing a new pool that will receive immediate development because of numerous short term leases on nearby acreage. The strike was made by Ed Taubert, Jessie McKee and C. J. Siemoneit's V. W. Crockett 1, Tract 4, H&TC Section 4½, Block 3, flowing 50 barrels of 43-gravity oil hourly with gas volume rated at 10,000,000 feet daily. Production is mainly from saturation at 5320-40 feet, although broken sand, lime and shale sections at 5271-5357 feet indicated possible oil and gas at intervals. The well was shut in to erect storage.

Crockett 1 is the largest Simpson-sand producer in the district, and is the first for Pecos County. Top of Simpson was called at 4755 feet, with an elevation of 2392 feet, and 7-inch pipe is cemented at 5258 feet. The area is known as the Imperial prospect, and is on a direct strike between Ordovician production in the Sand Hills field, Crane County, and the Apco pool, Pecos County. The latter produces from Ellenburger dolomite, overlying granite, while the Sand Hills field has recorded two small Simpson zone wells and seven Ellenburger producers.

The Imperial area has been rated as an outstanding Ordovician prospect since early 1938 when Magnolia Petroleum Company and Tex-Mex Petroleum Corporation's McKee 1-A, 1¼ miles north of the strike on the Crockett land, gave promise of commercial production from sandy lime at 5274-89 feet in Simpson, topped at 4775 feet with an elevation of 2385 feet. However, it was deepened to Ellenburger at 6102-6267 feet, resulting in nominal oil show with sulphur water, then plugged back to Simpson saturation for nitro shot with negative results. Meanwhile, acreage over a wide area to the north and south has been in demand. Some of the contributors towards the drilling of Crockett 1 specified the completion of a producer, or 6500-foot depth contract by December 20 in order to allow ample time to start drilling on short term leases.

Apco Extension Indicated

Humble Oil & Refining Company's Shearer 1, CE¼ of S½ H&GN Section 99, Block 10, is showing for a northwest extension and the sixth deep producer for the Apco pool, at 4731 feet in Ellenburger, topped at 4696 feet, or 2259 feet subsea. Swabbing tests indicate yield of about 50 barrels daily, and the broken pay is to be acidized.

Gulf Oil Corporation's University 1-F, projected Ordovician wildcat for Crane County and between the Church-Fields and Sand Hills areas, was fishing stuck drill pipe at 7753 feet. It is bottomed in the Permian, which has unusual thickness in this sector. The company's Wristen Bros. 5, first deep test for Ward County, was drilling out cement at 8859 feet in side-tracked hole, and will run casing upon reaching the Ellenburger near the 9000-foot level.

Another large gasser was recorded for the Soma shallow pool, western Crockett County, when George Atkins and Silas Pittman's Noelke 1-A, north offset to a high gas/oil ratio producer, blew in while bailing at 1500 feet, with 7-inch pipe cemented at 1420 feet. Gas flow was estimated above 30,000,000 feet daily.

Testing for water shutoff was underway late last week at Forest Development Corporation's Bradley 1, Ector County wildcat, after plugging back from 4410 to 4362 feet. String of 5½-inch pipe was landed after logging nominal saturation in drilling to the water level.

Natural flow of 646 barrels of 28.6-gravity oil in 20 hours through tubing choke was recorded by Magnolia Petroleum Company's George Sealy 1-41, NE SE SW Section 41, Block F, thereby giving the South Magnolia-Sealy pool, Ward County, its second producer and a northwest extension. Production is from 9 casing perforations at 2896-99 feet, with pipe cemented on bottom at 2901 feet, or 248 feet subsea. The company will drill Sealy 2-41, ¼ mile north of the new producer. The area involves a narrow reef-type structure that extends along a north-south trend.

Three outpost producers in process of completion along the north flank of the Slaughter field, Hockley County, pave the way for drilling scores of additional wells. Magnolia Petroleum Company's Mallet 1-G, NWc Labor 9, League 50, flowed 107 barrels oil in 6 hours through 1-inch choke after using 10,500 gallons acid in Permian saturation at 4922-5008 feet. The company's Mallett 2-G, SEc Labor 4, League 49, ⅞ mile northwest of nearest production, used cable tools to explore the producing section and to establish the water level. Top of brown lime was called at 3760 feet, and the San Andreas (solid) lime at 4120 feet, with an elevation of 3604 feet. The test was carrying hole full of oil upon reaching salt water, estimated at 3 gallons hourly, between 5024-35 feet. The hole will be plugged back for the customary acid treatments. The company is drilling three additional tests, and has projected a continuous development program as it has in excess of 100 proved locations. In order to support this campaign, Magnolia Pipe Line Company has authorized an 8-inch pipe-line extension from its West Texas system.

Slaughter Extended

Awoeb Oil Company and Bond Oil Corporation's Mid-Seale 1-B, SWc E½ Labor 29, League 39, ⅞ mile northwest of production in the Sundown sector of the Slaughter field, swabbed 32 barrels oil hourly after using 5000 gallons of acid in broken pay at 4920-5020 feet, and will be reacidized to attain steady flow. Top of San Andreas lime was called at 4120 feet, with an elevation of 3588 feet. The partnership proposes to drill eight wells on this tract and the adjoining east 163.7-acre lease, both having been acquired last July for $50 per acre cash and $150 per acre, payable from one-fourth of the production. The Texas Company is confronted with a drilling program that will likely surpass that of Magnolia Petroleum Company, and completed Slaughter 11, south edge

of the Sundown townsite, for a potential rating of 711 barrels after using 10,000 gallons of acid at 4985 feet. This new completion has a base daily allowable of 43 barrels daily.

Cascade Petroleum Company's J. M. Walker-Honolulu 1, southeastern Hockley County wildcat and 9½ miles east of nearest Slaughter field production, was fishing stuck drill pipe at 4780 feet. Top of San Andreas lime was called at 4280 feet, with an elevation of 3444 feet. Ray Rhodes and Atlantic Refining Company's Dean-Slaughter 1, Cochran County semi-wildcat and 2¾ miles west by south of production in the Duggan field, was also fishing stuck drill pipe with hole bottomed at 4813 feet. This test logged top of brown lime at 3930 feet and solid lime at 4310 feet with an elevation of 3728 feet, indicating favorable structural position for production, with lime porosity the determining factor.

Production test was under way at Forest Development Corporation's Whisenant-Shell 1, 1⅓ miles northwest of production in the Waples-Platter pool, Yoakum County, to test oil saturation at 5410-85 feet, with hole bottomed at 5500 feet. The prospective oil zone is below the water level, and a blank line may be run below 7-inch casing seat at 4942 feet to assure a decisive test. Top of San Andreas, or solid lime, was called at 4790 feet, or 1225 feet subsea.

East Texas

Test of Hawkins Woodbine Prospect Yields Salt Water

The Hawkins Woodbine prospect in Southeastern Wood County was temporarily eliminated as a source of oil production when Bobby Manziel et al's Morrison 1 yielded hole full of salt water with small amount of 27- 28-gravity oil when tested through tubing at 4925 feet.

Recovery of oil saturation in the Woodbine series, topped at 4789 feet with an elevation of 423 feet, gave promise of a new strike for the north portion of the basin. Lease and royalty prices soared to high levels during the 12-day period that elapsed before a production test was made.

This apparent failure does not condemn the structure for Woodbine production, as it is situated on the northwest edge. Humble Oil & Refining Company holds lease on the bulk of the acreage on top of the uplift, and is due to start its first test in the near future.

Amerada Petroleum Corporation's Lloyd 1, northern Wood County wildcat, was abandoned at 6506 feet after testing water in the Paluxy series, topped at 6474 feet with an elevation of 444 feet.

Gulf Oil Corporation has made location for Venters 1, west offset to Harry Moss and Delta Drilling Company's discovery for the Pittsburg Trinity pool, Camp County. The discovery flows its 100-barrel daily allowable from the 8000-foot Travis Peak sandstone.

Grant Permit to Recycle In La Gloria Field

La Gloria Corporation has been granted a permit by the Texas Railroad Commission to recycle gas from wells in the La Gloria field, Jim Wells and Brooks counties.

Southwest Texas

South Ganado Discovery Begins Producing Oil

Pure Oil Company has started running oil from its newly discovered South Ganado field in Jackson County, where it completed Frank Spacek 1 in the Frio. The well flowed 240.51 barrels of 24.1-gravity oil in 24 hours through 12/64-inch choke, under 1294 pounds tubing and 800 pounds casing pressure. The flow included 1.2 percent salt water. Gas/oil ratio was gauged at 1807 to 1. The flow is from perforations at 5402-20 feet with 20 shots.

Magnolia Petroleum Company's Mary Mitchell 3, in the western portion of the Lolita field, was testing through perforations in a sand at 5270-78 feet. The well flowed pipe line oil on a drill-stem test and a good producer is expected. The new zone, in the Marginulina, was cored in several wells, but this is the first one in which a completion was attempted.

After drilling to 8552 feet, Magnolia Petroleum Company plugged back Nannie B. West 105-A to around 6150 feet and set casing for a completion attempt in sand at 6095-6108 feet. Several tests in the field have shown oil in this zone, but in each attempt at completion, the wells developed salt water. No. 105-A showed 2250 feet of oil and 190 pounds working pressure in 15 minutes on a drill-stem test of this pay.

H. R. Smith, Inc., apparently has discovered a new Frio sand field three miles east of the Orange Grove townsite in Jim Wells County with William Koehler 1, Casa Blanca Grant. The well had been drilled to 5800 feet and plugged back to 5110 feet. Perforations were to be made in sand at 5049-68 feet, where the well is expected to make a gas producer.

Agua Dulce-Stratton east flank development in Nueces County, again was boomed as a 3000-foot east extension was assured in Richardson Petroleum Company's Guaranty Title 1, Section 305. The well cored a sand at 6883-6904 feet and flowed oil on a drill-stem test. Casing was landed near bottom at 7250 feet.

Fred Shield and Allen & Morris' Allen & Gallagher 1, Survey 147, and 4700 feet north of the Shield field of Nueces County, apparently has uncovered a second sand for the area. The well flowed mud, gas, water and distillate through 5/32-inch choke under 1250 pounds working pressure after perforations had been made at 6968-74 feet. These holes were squeezed and new ones were to be made slightly lower.

Gulf Board Oil Corporation et al's Texas 1, on the Mud Island prospect, Aransas County, flowed 98 percent salt water and 2 percent oil on production test of Frio zone at 8555-88 feet. Electric log had been run, and casing landed at 8554 feet. The well is located in State Tract No. 239, Aransas Bay, and is on a submerged site six miles southeast of Rockport and just south of the shore of. Mud Island. It was drilled under contract by Harry L. Edwards. The well was cleaning at the close of the week.

A second producer and a 1426-foot southeast extension to the Duck Bay field of Calhoun County was expected to result from Coronado Corporation's Welder 9-A, which topped the field sand at 5645 feet, then drilled to 6025 feet. Casing was landed at 5700 feet and production will be obtained through perforations.

A new and deeper sand for the submerged sector of the East White Point field of Nueces and San Patricio counties resulted from final completion of Sinclair Prairie Oil Company's State-Nueces Bay 2(974), in State Tract 974. It was finished through perforations at 5850-62 feet and flowed 135.75 barrels of 40.4-gravity pipe-line oil per day through ⅛-inch choke. Working pressure was 925 pounds and gas/oil ratio 1005/1.

Wilcox Oil Well in DeWitt

A second Wilcox producing level, this one making oil, was being developed by Atlantic Refining Company with W. E. Conwell 1, one mile northeast of the discovery distillate producer of the Thomaston field in DeWitt County. The well was flowing several barrels of oil per hour along with a large volume of salt water through small choke. Perforations had been made at 7918-32 feet. The salt water intrusion was believed to have been from a faulty squeeze job, two attempts having been made and both apparently failing. It is expected that the well will again be squeezed and finally completed in the upper portion of the Wilcox zone as a gas and distillate producer.

Discovery of crude production materially enhances this reserve and makes it look like one of the major areas of the South Texas Gulf Coast.

Failing to produce anything other than salt water on several tests through perforations, Edwin M. Jones abandoned George B. West Estate 1-B, 2½ miles west of George West in Live Oak County. The well first had attempted to blow out at 8387 feet and drill pipe was cemented in the hole at 8386 feet. Mechanical difficulties resulted when a completion was attempted and the well was plugged back being perforated several times below 8000 feet and once at 6210-35 feet. From the bottom of the hole, the well had flowed 74 barrels of 46-gravity distillate per day through ⅛-inch choke.

A new pool, likely to be called Nichols, has been opened 7500 feet due east of the Samfordyce area in Hidalgo County by the Royal Oil & Gas Corporation. Yturria Townsite & Improvement Company 1-A, NE Lot 4, Porcion 44, and 427, 4 feet east of No. 1, flowed estimated 85 barrels of crude per day through ⅛-inch choke under 425 pounds tubing and 580 pounds casing pressure. The oil is 28 gravity. The test was still making some wash water but was due for a final gauge over the week-end. The well had been drilled to 3553 feet and was producing through perforations at 3497-3503 feet. Sand had been cored at 3498-3502 feet.

A slight extension to the North Dale field of Bastrop County was effected by the completion of Marts and Beavans, Inc.'s J. E. Harris 1, which pumped in excess of 100 barrels per day of oil from the serpentine. The well, located in the J. Maxmilliam Survey, is bottomed at 2179 feet, casing being set at 2145 feet.

Texas Gulf Coast

Ogburn Extended 4000 Feet South; District Activity Up

Importance of the Ogburn field, Harris County, outstanding 1940 Gulf Coast distillate discovery, was enhanced by Mrs. Joyce Richardson and Christian-Carpenter Drilling Company's completion of Backen 1, 4000-foot south extension, as the first oil well in the 6900-foot horizon. Flow was 162 barrels of 38.1-gravity oil through ¼-inch choke with low gas/oil ratio from the discovery sand at 6933-37 feet. Tubing pressure was 1650 pounds, casing pressure 2400 pounds. This is the fifth well in the field, and the fourth in the discovery sand. The second sand was found by W. L. Goldston's Josey Farms 1, 2500 feet northwest of the discovery, flowing 42-gravity oil from 6654-58 feet. This test is offset on the west by L. M. Josey's Fee 1, only currently active test and drilling near the sand. Next test scheduled will be by Richardson and Christian-Carpenter Drilling Company on a farmout tract from Pan American Producing Company, offsetting discovery acreage to the south.

The Texas Gulf Coast completion rate staged a slight rally in October, registering 77 wells, compared with 60 in September, and 107 in October, 1939. Completions for the 10-month period, 1940, totaled 1020, a decrease of 8.1 percent from the similar figure for 1939.

H. C. Cockburn found the discovery sand in the Dyersdale field, Harris County, at 4050-80 feet, slightly higher than in preceding tests, and ran pipe to 4100 feet to prepare this southeast offset for completion, fourth for the field. Official potential of Burkett 3 was 358 barrels of 22.3-gravity oil daily from 4060-70 feet through ¼-inch choke, tubing pressure 400 pounds, casing pressure 274 pounds. The conditions of shallow pay, extremely rapid drilling time, and a good crude for lubestock have encouraged rapid development. Cockburn's Burkett 8 drilled out of surface pipe, as did J. M. English's Stewart 1, north edge. McDannald Oil Company rigged Choate 1, in Block 20, Whitney Britton Survey, 1200 feet northeast of the discovery. Moran Corporation's Ezzell 1, west edge location, was the only inactive operation.

H. M. Naylor completed Musselman 7, for a producer, and the most southeasterly well west of the Brazos River in the Thompsons field, Fort Bend County. Flow was at the rate of 900 barrels daily through ¼-inch choke from 41 feet of Vicksburg sand topped at 7860 feet.

Bailey's Prairie Continues Good

Glenn McCarthy has evidently earned credit for the Texas Gulf Coast's twelfth 1940 discovery, as Munson 1, wildcat on the Bailey's Prairie prospect, S. Carter Survey, Brazoria County, continued to flow distillate from 11.650 feet as operators tried various chokes and hook-ups without releasing a gauge. If sustained, this production will be the deepest in Texas, succeeding Chocolate Bayou, Brazoria County.

A northeast extension loomed for the Rowan field, important 1940 Brazoria County distillate discovery, as Humble Oil & Refining Company set casing at 8565 feet in Hubbard 1 to test the regular sand, logged at 8535-8555 feet. Texas Gulf Producing Company was conditioning mud at 8469 feet in Moore 1, west extension attempt. Electrolog was run at this depth prior to coring deeper. Stanolind Oil & Gas Company began work on Burgess 1, south side location, as Humble Oil & Refining Company staked Hubbard 2 to offset the well now completing. Rowan & Nichols and Texas Gulf Producing Company killed Bradbury 1, 2200 feet east of the discovery, for reworking. Two weeks ago this test obtained the first production from the 8900-foot sand, flowing 7 barrels of distillate hourly through 3/16-inch choke from perforations at 8980-85 feet.

The Chocolate Bayou area, also in Brazoria County, was once more of interest as Phillips Petroleum Company carried two wells past the 8900-foot mark. Triangle Development Company 1, east outpost, was drilling below 9400 feet, while Houston Farms Development Company 1, west side test, was drilling at 8900 feet. Both tests found salt water in the upper Frio and continued toward the 11,400-foot objective, until recently the deepest production in the state.

Humble Oil & Refining Company abandoned State B-6-300, most southwesterly wildcat in the current Galveston Bay drilling campaign, at 9500 feet, failing to find any of the gas and distillate shows in the lower Frio which have characterized the producers at Red Fish Reef, 2 miles northeast. The completion reduced number of drilling wells in Galveston Bay to six. The company also abandoned Woodley 17-Y, Raccoon Bend field, Austin County, at plugged-back depth of 3200 feet. This test was drilled well into the Wilcox without finding saturation, and plugged successively to the shallow producing levels for the field. H. E. Williams quit Harris 1, wildcat in McCutcheon Survey 54, 6 miles northwest of the Katy field, Waller County, at 7518 feet, after topping Cockfield at 6460 feet. New wildcat operations were Keown Oil Company's Holland & Gordon 1, a 2000-foot test 3 miles north of the Orange field, Claiborne West Survey, Orange County, and Coastal Drilling Company's Ransome 1. 1½ miles west of the Sandy Point field in Brazoria County, C. S. Gorbett Survey.

Missouri-Pacific to Run Special API Train

Missouri Pacific Lines has announced a South Texas special train for oil men planning to attend the annual meeting of the American Petroleum Institute in Chicago, November 11-15, to be operated from Houston to Chicago via Missouri Pacific Lines, Texas & Pacific Railway and Wabash Railway.

The train will leave Houston, Union Station, Saturday, November 9, at 4 p. m., arriving at the Dearborn Station in Chicago at 4:30 p. m. the following day.

Returning, it will leave Chicago at 9 a. m. Friday, November 15, arriving in Houston at 9:30 a. m. November 16.

The equipment will include air-conditioned standard Pullmans with drawing rooms and compartments, a diner and a lounge car.

Persons wishing to attend the A. & M. College of Texas-Southern Methodist University football game at Dallas, November 9, may leave Dallas at 6 p. m. via Texas & Pacific Railway, on The Texan, arriving in Longview at 8:40 p. m. and joining the South Texas special train which leaves Longview at 9:10 p. m.

Texas Permits

The Texas Railroad Commission last week authorized permits for 272 wells, 95 more than were allowed the week before.

Two permits were granted in the East Texas field, both were in Gregg County, while 19 locations were reported from the remainder of the East Central Texas area.

North Texas led the state with 97 permits, including 22 in Young, 20 in Wichita, and 10 in Cooke County. Panhandle operators reported 23 locations. There were 49 permits granted in West Texas, including 11 in Ector and 11 in Gaines County, while 20 were approved in West Central Texas.

The commission authorized 44 wells in Southwest Texas, and 18 in the Gulf Coast District.

Ask Increased Allowable For East Flour Bluff

Barnsdall Oil Company has requested the Texas Railroad Commission to fix a basic allowable of 100 barrels daily for wells in the East Flour Bluff field, Nueces County.

There are five producing wells in the field, and two tests are being drilled. The allowable now is 50 barrels a well, with field subject to shutdowns. Production is from the Frio at 6800 feet, and J. S. Noland of Barnsdall said that the wells are producing on state leases.

The leases expire in 25 years, and at the present rate of flow, Noland estimated that 65 years would be required to recover the oil. He said the leases have already run more than three eyars. Humble Oil & Refining Company has nominated 250 barrels daily for November.

Ask Allowable Increase For Fuhrman Field

Fuhrman Petroleum Corporation has requested an increase of 510 barrels in the allowable for the Fuhrman field, Andrews County. At a hearing before the Texas Railroad Commission last week, the company presented evidence to show that the current allowance is 1708 barrels, divided among the 55 wells producing in the field, which is subject to shutdowns.

Humble Oil & Refining Company filed nominations to purchase the additional oil, and agreed to take as much as 1720 barrels daily for the month of November. The nomination was for net oil, while the current allowable, although it approximates the nomination, in reality amounts to only two-thirds, since the field is shut down nine days each month.

Louisiana Gulf Coast

South Lake Charles May Yield New 10,000-Foot Field

October activity in the coastal sector registered 74 completions, against 65 for the preceding month, and 119 for October, 1939. Completions for the 10-month period, 874, were 34 percent over the total for the similar period in 1939, the smallest point which this margin has reached in late months. Number of active rigs declined slightly to 120 at November 1, a level 8.4 percent under that of a year ago, and an indication that suppression of geophysical activity and recent crude price cuts will depress the completion rate appreciably in the last two months of the year.

Possibility of a new field on the South Lake Charles Prospect, Calcasieu Parish, vied for attention with several flank sand strikes. W. T. Burton and Continental Oil Company's Mayo Realty Company 1, wildcat in Section 11-8s-11w, blew gas and distillate out of control for 2 hours before sanding up, from below 10,800 feet. No electrologging has been done on the lower part of the hole, so extreme pressures and distillate found in cores and drill-stem test taken at 10,852-871 feet provide the only evidence that a well can be made. Operators were installing new preventors and will probably test the distillate horizon. The blow-out zone is apparently the one that attempted to blow several weeks ago, subsequent to which drill pipe stuck and the hole was plugged for side-tracking. The prospect has been worked by Union Sulphur Company, Shell Oil Company, Stanolind Oil & Gas Company, and The California Company, using reflection seismograph, torsion balance, or gravimeter. Current test is the fifth for the prospect, previous deepest being 9250 feet. Acreage is checkerboarded among several major and independent operators.

The California Company opened a second sand in the Stella (Belle Chasse) field, Plaquemines Parish, on the west bank of the Mississippi River, 8½ miles southeast of New Orleans. Delta Minerals 1, Lease 7, once accredited the discovery for the field, tested 257 barrels of pipe-line oil daily through ⅛-inch choke from 9980-85 feet on a 24-hour gauge. A 7-hour test yielded 76 barrels of water-free oil via ⅛-inch choke, with tubing pressure 2175 pounds, casing sealed. The well was shut in to tear down rig. This operation was the most protracted in the coastal sector, being completed in the 9980-foot pay in April for 250 barrels of fluid daily. A 90 percent water cut developed that could not be eliminated from any of the several sands between 9950 and 10,500 feet. It was killed, drilled past 11,000 feet, stuck pipe, plugged back, and side-tracked to the point of original completion. Meanwhile, the firm's Delta Minerals 1, Lease 5, made discovery at 7485-90 feet. The company is now drilling a directional test under the Mississippi River, State 1-458 being on the east bank, 250 feet from the top of the levee.

Fohs Oil Company found gas on the southwest flank of Gueydan, Vermilion Parish, completing Mulvey Irrigation Company 1, 3800 feet southwest of production, for 1,700,000 feet daily with trace of distillate through 10/64-inch choke, tubing and casing pressures equalized at 3175 pounds, from 9248-54 feet. This level yielded electrolog and core indications of distillate saturation. Prior to completion, drill-stem tests at 9262-70 and 9455 feet failed. Company staked Mulvey Irrigation Company 2, 500 feet south of the gas well, in Section 34-11s-1e.

New One for St. Mary?

The district's best bid for a new field in the next week appears to lie in Bateman Drilling Company's Foster 1, wildcat a mile south of Franklin, St. Mary Parish, Section 38-15s-9e. Seven-inch casing was set at bottom, 10,480 feet, for tests of sections at 10,378-394 and 10,425-430 feet, which showed oil. The wildcat took saturated cuttings from 9750-81 feet, electrolog failed to confirm. A scarcity of previous tests in the large area bounded roughly by Franklin on the north, West Cote Blanche Bay on the west, Wax Lake on the south, and Bayou Sale on the east, adds interest to this wildcat operation.

The Texas Company has apparently opened the third sand at West Cote Blanche Bay, St. Mary Parish 1940 discovery, completing State-Cote Blanche 3 at 9058-86 feet, with no gauge taken. Each test drilled in this field has opened

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a new sand. The field discovery flowed 25 barrels of 23-gravity oil daily from 3109-36 feet, and the second test flowed 239 barrels of 29-gravity oil daily from 4997-5019 feet.

Superior Oil Company opened a third new Miocene sand on the west flank of Bayou Blue, Iberville Parish, completing Schwing 5 for 170 barrels of 35.8-gravity oil daily through 9/64-inch choke from perforations at 5722-32 feet, tubing pressure 800 pounds, casing pressure 890 pounds. The company has two other active flank tests, Schwing 6, and Grief Cooperage 1, the latter drilling below 6920 feet. The company also established pumping production on the south flank of Bayou Bouillion, St. Martin Parish, getting 70 barrels in 10 hours of continuous pumping from Rycade 3. Perforations were at 3305-14 feet, a zone which washed in flowing 22-gravity oil, but died in 40 minutes.

W. T. Burton located two wildcats, the sixth and seventh of his attempts to find production in Lake Pontchartrain. State-Lake Pontchartrain 4 will be 10 miles west of Mandeville; State-Lake Pontchartrain 5, five miles southwest of Mandeville, in an area directly across from New Orleans off the St. Tammany Parish shore. Burton's previous attempts have been on the opposite side of the lake, near Point Aux Herbes.

As the first of two free tests on the extensive Biloxi Marsh Lands in St. Bernard Parish, The California Company staked Biloxi 1, Section 25-12s-16e. The test is part of the consideration for one-half interest in the properties rendered the company by Tide Water Associated Oil Company.

North Louisiana

Olla Extended South and Defined to the West

West producing limits of the Olla field, LaSalle Parish, were defined last week when Arkansas Fuel Oil Company's Tremont Lumber Company C-1, NW SE 34-10n-2e, was abandoned with salt water in the hole at 3950 feet, and plugged-back depth of 2450 feet. Just above the latter level, the shallow Wilcox proved it was non-productive when tested. This test topped Wilcox at 1615 feet, elevation 161 feet.

The southern limits of the field were extended ½ mile south as Placid Oil (H. L. Hunt) Company's Louisiana Central Lumber Company 53, CNE NE 2-9n-2e, was completed for 190 barrels daily from Wilcox at 2433 feet. With elevation of 170 feet, it topped Wilcox at 1616 feet.

H. L. Hunt added the third oil well for the new Nebo (Jena) field, also a shallow Wilcox area, when he completed Goodpine A-3, CSW SE 9-7n-3e, for 220 barrels daily at 4447 feet. It topped Wilcox at 2532 feet, elevation 179 feet.

Oakes, Carruthers and Morelock's Whitman 1, SW NW 2-20n-5w, Lisbon district, Claiborne Parish, which showed a week ago for a wet gas well, last week on a 24-hour test made 33 barrels of 40.7-gravity oil through ¼-inch choke with tubing pressure 800 pounds. It is producing from the Travis Peak, a lower level than the producing horizon at Lisbon, which is basal Glen Rose lime (Pettet). Casing was cemented at 5409 feet. Testing still continued at this well last week. Meanwhile, in the same section, J. D. Carruthers, Trustee's Burgess-Simmons 1, which had logged 24 feet of porosity and two feet of saturation when it blew out at 8678 feet in the lower Marine, was brought under control and efforts were being made to remove the drill stem in the hole when the blowout occurred.

Northeast of Lisbon production 2½ miles, Union Producing Company's Meadows A-1, CNE 18-21n-4w, logged five feet of lower Marine showing gas and distillate, but missed two drill-stem tests at 8970-75 feet, and arranged to core ahead.

Louark Producing Company made its entry into the Olla field, LaSalle Parish, staking two locations, both inside producing limits of the field. One location northeast of production in the northeast offshoot of the Louisiana part of the Rodessa field, National Oil Corporation made location for a Glen Rose-lime test on a 60-acre tract in NE NE and E½ NW NE 9-23n-15w. It will seek the regular producing Rodessa levels.

Walter Newstadt abandoned a South Arkansas wildcat test, M. H. McKee 1, NW SE 35-16n-15w, in salt water 5201 feet. Electric log was run to 5070 feet. With elevation of 237 feet, this test logged massive anhydrite at 4665-4915 feet.

Deepest test drilling in North Louisiana is The Ohio Oil Company's G. W. Taylor 15, Account 1, near CSE 15-23n-8w, drilling in Buckner at 10,897 feet.

Louisiana Permits

Nine drilling permits were issued last week by the Louisiana Conservation Commission, of which seven were in North Louisiana in the following parishes: Bossier 1, Caddo 3, Catahoula 1, Grant 1, and LaSalle 1. The two in South Louisiana were in Jefferson and St. Mary parishes.

Arkansas

Columbia Smackover-Lime Test Has Salt Water

A wildcat seeking the deep Smackover lime in South Arkansas was abandoned, the sixth Smackover lime wildcat prospect in Columbia County to be a failure. An equal number of such prospects in this county resulted in discovery of deep production since the Buckner field, the first such field in the state, was discovered in November, 1937.

The latest failure is Louark Producing Company's L. A. Longino et al 1, CNW SE 10-18-20, abandoned with salt water at 8405 feet. With elevation of 314 feet, it logged massive anhydrite at 3550-3728 feet, topped Travis Peak at 4686 feet, lower Marine (Cotton Valley) at 6102 feet, and Smackover lime at 8305 feet, or 8297 feet by electric log. The Smackover lime carried salt water

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The third operation for the newly discovered Smackover lime producing field at McKamie, LaFayette County, which yields gas/distillate, was spudded: Normandie Oil Company's Reuben Cornelius 1, NW SW 28-17-23, ½ mile east of the two deep gas-distillate wells owned by Atlantic Refining Company.

Hope of extending the newly opened 3000-3100 foot producing level in the old Urbana field, Union County, met with failure at M. H. Marr, Jr.'s C. W. Tillman 1, NE NE 9-18-13, which was planning to abandon at 3045 feet after electrical log.

Operations continued at a low ebb in deep South Arkansas fields. The Magnolia field, Columbia County, had one test drilling and one rigging; Buckner, partly in Columbia and partly in LaFayette County, had one drilling and one moving in materials, and Dorcheat, Columbia County, had two tests drilling.

The Nick Springs offshoot of the old Rainbow City field, Union County, added its tenth oil well last week.

Arkansas Permits

One drilling permit was authorized last week by the Arkansas Oil & Gas Commission, in Nevada County, Berry Asphalt Company's C. C. Fincher 6, NE NE SE 10-14-20.

Southeastern States

Yazoo County Wildcat May Go Below 5000-Foot Contract

Four new wells were completed in the Tinsley Dome field, Yazoo County, last week, eight tests were drilling, and six others were active locations, three of them new ones.

A wildcat northeast of Yazoo City and in Yazoo County, Edward DeLoach's W. W. Wilburn 1, SE SE 6-12n-1e, reached contract depth at 5012 feet, ran electric log, and may deepen another 1000 feet. With elevation of 139 feet, this test topped the chalk at 4760 feet.

Clint Crosby was preparing to run casing and perforate at 4100 feet in John F. Allen 1, SW SW 33-13n-5e, Attala County wildcat, where an oil showing was recently logged and the test shut down to cure titles. Hole was being reconditioned.

Gulf Refining Company will start a wildcat soon on its Montgomery County block centering around Section 35-15n-9e, near the village of Kilmichael. Tide Water Associated Oil Company is taking a 30,000-acre block in Townships 5 and 6, Range 11, Lawrence County, and also has secured geophysical option on 5280 acres in Township 3n, Ranges 16w and 17w, in Lamar and Marion counties.

Humble Oil & Refining Company continued its widespread leasing in northwest Florida, having just taken 200,000 acres in Escambia County, including 45,000 acres from Florida Pulp & Paper Company. In Escambia and Santa Rosa counties, Donee Exploration Company, Houston, has leased 50,000 acres. Sun Oil Company and Gulf Oil Corporation have also been taking acreage in Escambia County.

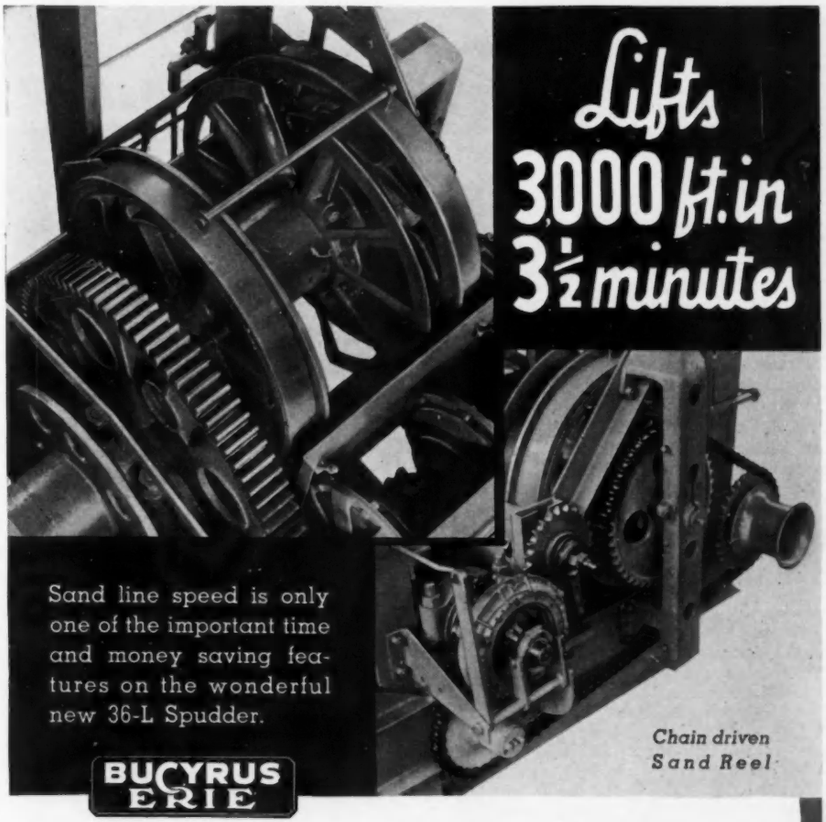
Rocky Mountain Area

Wilson Creek Extended South by Good Well

The Texas Company and The California Company turned an apparent failure into an excellent well extending limits of Colorado's Wilson Creek field, Rio Blanco County, ½ mile south, as Unit 4, SWc 2-2n-94w, plugged back from 6698 feet in the Sundance, which carried water, to 6604 feet, and placed a shot opposite a saturated Morrison formation. The well responded with a flow between 2000 and 3000 barrels. Completion of the extension test will mean the drilling of a dozen or more wells on the formerly considered doubtful side of the Wilson Creek structure.

Lance Creek was extended ¼ mile south and east by The Ohio Oil Company's State 9, NW SW NW 36-36n-65w, Niobrara County, eastern Wyoming, which tested 15 barrels per hour from Sundance sand at 4468 feet, and was rigging up pumping equipment.

A departure in whipstocking was undertaken by Resolute Oil Corporation in State 2, CSW SW 16-57n-101w, Badger Basin field, Park County, Wyoming, a well which recently set a new Wyoming depth record of 10,121 feet. Rather than mill the customary window through the casing, operators removed a 15-foot section of 7-inch string at 7400 feet, set whipstock, are drilling in new hole.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SOUTH MILWAUKEE, WISCONSIN

Michigan

Bay County Test at 6175 Feet on Way to 9000 Feet

Gulf Refining Company's projected 9000-foot Trenton-St. Peters test, Bateson 1, Section 2-14n-4e, Bay County, was drilling at 6175 feet October 29 in Niagaran salt, having shattered every old drilling depth mark in Michigan excepting the all-time record of 6674 feet, established with cable tools between 1927 and 1935 by the Newaygo Gas & Oil Company's Bates 1 in Newaygo County.

Only two tests have been drilled to or below 5000 feet in Michigan this year, to 5117 and 5025 feet, none were drilled to 5000 feet in 1939, and only one, 5069 feet, in 1938. Geologically, however, numerous tests have drilled older time formations in Southeastern and Southwestern Michigan where the basin brings such formations as the Niagaran and Trenton up to levels of 1900 feet.

Bateson went into the salt section at 5480 feet, and has been averaging from 10 to 13 feet per hour in this formation. In the shale and anhydrite section of the Bass Island, overlaying the salt, only 40 to 50 feet of hole was made in 24 hours. Geologists are only able to guess the potential thickness of the salt bed now being drilled. C. W. Teater's Nevins 1, NW NW NE 18-32n-6e, closest test to the Bateson, had a 2100-foot salt section.

Sun Oil Company's Kidder 1, Section 8-3n-9w, Barry County, deepest test drilled this year in Southwestern Michigan, was below 4600 feet and in the Trenton lime objective without reporting commercial zones. Test logged Trenton at 4387 feet.

Merrill & Dean have moved in a rig for Young 1, SE NW SW 9-17n-15w, Mason County, for a projected 3300-foot Sylvania gas-oil test. In 1928-30 considerable development took place in the district of the new test in an attempt to outline a field after Logan Oil & Gas Company's Young 1, SW SE SW 9-17n-15w, which carried both gas and oil in the Sylvania at 3200-3300 feet. Despite the fact that subsequent tests carried gas and oil, or both, not only in the Sylvania but also the shallower Traverse and Dundee beds, attempts to develop a commercial field failed and little exploration has been carried on since 1933.

The original well reportedly carried 1,400,000 feet of gas and pumped 10 barrels of oil per day. Several promotional deals for construction of gas pipe lines into Ludington, Muskegon and other cities were launched during 1930 on the strength of the first tests, but never were carried out. State records credit Mason County with 228 barrels of oil, all produced in October, 1934.

Attempts to return Cryden Oil Corporation's McDonald 1, Section 20-17n-14e, Huron County discovery, to commercial production were still being carried on, but with little encouragement. On the first 24-hour pump test, the 1430-foot well recovered only 8 barrels of oil to 32 barrels of water. With two shallow, 1400-foot Traverse zone, tests already drilled dry, deals were closed for two Monroe-lime tests in the area, the original objective of the discovery before shallow production was logged. The Monroe comes at approximately 2600 feet.

Michigan's most promising play of 1940 for a new basin field was temporarily dead with the sixth start in Hamilton Township, Clare County, junked. It left the area without a drilling well. The discovery, which flowed 1403 barrels natural and produced over 7000 barrels the first week, was still being pumped with recovery ranging from 15 to 30 barrels plus an equal amount of water.

Ora A. Avery's Dunnworth 1, Section 13-6s-11w, St. Joseph County wildcat which carried enough oil saturation at 2670 feet in the Trenton to warrant a 250-quart nitro shot, was abandoned.

California

Rio Bravo Field Defined on Northeast

Union Oil Company established the northeastern edge of the Rio Bravo field, Kern County, with Kernco 76-27, which cored gray sand from the top of the Rio Bravo at 11,544 feet to bottom at 11,576 feet, where coring was discontinued. Hole will be plugged back and whipstocked southwest.

Jergins Oil Company has staked location for a second wildcat in the Mendota area, Fresno County, Section 29-14-13, south of Cheney Ranch 1, wildcat drilled by the company in this section earlier this year which failed to make a commercial producer although it flowed a quantity of gas on test. Continental Oil Company, Superior Oil Company, Barnsdall Oil Company and Hogan Petroleum Company reportedly have an interest in the new venture.

In the Sulphur Mountain area of Ventura County, Madison Oil Company reportedly drilled through hard fractured shale with occasional streaks of sand with oil showings from 1745 feet to present bottom at 2366 feet. The test, Delpy 1, is located in Section 24-4-22. Operator plans to carry the hole down to 2500 feet before running electric log.

Hancock Oil Company of California has staked location for a wildcat, Roberts 1, Section 6-30-28, Union Avenue district of Kern County, scheduled for 5700 feet.

Union Oil Company has purchased interests of E. H. Moore, Inc., and Sovereign Oil Company in 6400 acres of proven and prospective oil land in the western part of the Santa Maria Valley field, Santa Barbara County. Property includes some 600 acres of proven land on which 10 producing wells have been drilled. Property involved is owned by Union Sugar Company. It was originally leased by Sovereign Oil Company and later transferred to E. H. Moore, Inc., Sovereign Oil Company retaining an interest in the leases. Holdings of The Ohio Oil Company in the area were purchased by Union Oil Company recently, and the combined acquisitions increase the company's total acreage in the district to upwards of 10,000 acres.

Union Oil Company discovered the Santa Maria Valley field in March, 1936, and subsequently constructed a 10,000-barrel pipe line to its marine terminal at Port San Luis, San Luis Obispo County, which is the principal outlet for the field. The oil is low-gravity, and its primary market is for road building purposes. Prior to the war, a large percentage of the output was shipped to Holland.

Frisco-Alton Special Tulsa-API Train

A special train from Tulsa to Chicago for the American Petroleum Institute meeting has been announced by Frisco-Alton Railroads. It will leave Tulsa at 5:30 p. m. Sunday, November 10, arriving in Chicago the following morning at 8 o'clock.

Regularly scheduled trains from Tulsa leave at 2:35 p. m. and 8:35 p. m., arriving in Chicago at 7:45 a. m. and 1:53 p. m., respectively, the following day.

On return, the overnight train leaves Chicago at 4:50 p. m., arriving in Tulsa at 10:10 a. m. Another leaves Chicago at 11:40 a. m., arriving at 5:20 a. m. the following day, with the sleeper held in the Tulsa yards until 8 a. m.

Raise Harper Gas/Oil Ratio

A new order issued by the Texas Railroad Commission increases the gas/oil ratio allowance for wells in the Harper field, Ector County, from 4000/1 to 5000/1.

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"ARTIE" COMPTON, Gen'l Mgr.

UNITED STATES WELL COMPLETIONS

Alabama

Madison County (Wildcat)—

Company, Well and Location	Init. Prod. Bbls.	Depth
W. W. Newman, tr., Nichols 2, 2-68-2e	*	323

Arkansas

Columbia County (Wildcat)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Louark Prod. Co. et al, Longino et al 1, 10-18-20	*	8405

Union County (Nick Springs-Rainbow City)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Fohs Oil Co., Grace 4, 31-17-14	275	3774

California

Fresno County (Coalinga Eocene)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Robert S. Lytle, No. 73-18F	2476	8145

Fresno County (Coalinga Northeast)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Pure Oil, East Coalinga Subd. 1	*	8297
Standard, No. 75-19B	3094	8245

Kern County (Coles Levee)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Richfield, KCL-A 67-28	1592	9390
KCL-A 34-32	1622	9075
KCL-A 24-33	1012	9200

Kern County (Rio Bravo)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Superior, Curtis 1	1500	11,426

Kern County (Ten Sections)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Shell, KCL-a 63-30	1075	8220

Kings County (Kettleman North Dome)—

Company, Well and Location	Init. Prod. Bbls.	Depth
KNDA, No. 3-26Q	No. Est.	7830

Los Angeles County (Montebello)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Union, Howard & Smith 7	308	7726

Los Angeles County (Wilmington)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Alvan Pet. Co., Pet. Management 12	300	3708
General Pet., H. C. 19	110	4060
L. A. Basin Dr. Co., No. 7	100	3202
Union Pacific, U. P. 159	423	3011

Orange County (Huntington Beach)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Southwest Explor. Co., State 32	287	4525

Solano County (Rio Vista)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Standard, McCormack 1	¶11.95	4538

Ventura County (Rincon)—

Company, Well and Location	Init. Prod. Bbls.	Depth
C. C. M. O., Hobson B-36	82	5628

Illinois

Bond County—

Company, Well and Location	Init. Prod. Bbls.	Depth
C. B. Talbot, Foley 1, se c sw sw 29-5n-4w	*	630
Geo. Brainard et al, Lindley 1, ne ne sw 26-6n-4w	*	1278

Clay County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Shulman Bros., Colclausure 2, e½ sw sw 10-3n-7e	44	3013

Clinton County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Shell, Criley 21, ne ne nw 2-1n-1w	69	1368
Thompson Dr. Co., Knolhoff 2, ne c se 10-1n-2w	23	1200
Jack Wellinghoff et al, Hulsmann 1, ne ne se 17-1n-3w	*	2540
J. B. Williams, Stein 1, sw sw se 36-2n-1w	14	1366
E. J. Goldschmidt, Holtgrave 1, se se ne 33-2n-3w	*	1074

Edwards County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Noah & Morrison, Works 2, nw se se 13-2s-10e	600	3217
Jarvis Bros., Wicke 3-A, nw se ne 24-2s-10e	112	3194
Superior, Works 5, ne sw nw nw 18-2s-11e	190	3234

Fayettte County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Zephyr Dr. Co., Stevens 5, sw sw ne 31-6n-3e	150	1620
Carter, Mills 2, sw sw se 4-7n-3e	60	1555
Shaw 2, sw nw ne 17-7n-3e	72	1546
McCormick 14, nw nw se 18-7n-3e	168	1588
Phillips 2, ne se nw 1-8n-3e	90	1526
Lilly 4, ne ne sw 16-8n-3e	*	1601

Franklin County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Benedum-Trees, McNiel Hrs. 1, ne se se 27-7s-4e	295	3123
Manley PL, Downen 2, nw sw sw 26-7s-4e	375	3132
Wilhelmi & Gillian, Searles 1, n½ nw ne 34-7s-4e	75	3163

Hamilton County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Kingwood, Morris 5, sw ne se ne 34-5s-6e	105	2970

Lawrence County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Kentucky Nat., Citizens 2, c sw nw 13-4n-11w	*	1157
Parriot & K. N. G., Hays 1, s½ nw ne 13-4n-11w	¶15.5	1082
Hays 2, e½ ne 13-4n-11w	¶33.0	1089

Madison County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Frank Henigman, Roberts 1, n½ se sw 24-4n-5w	1	372

Marion County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Creeds, Kerwin 1, nw c sw 28-3n-1e	*	1593
Jones et al, Hester 1, se ne sw ne 35-3n-1w	*	1504
Bialock Dr. Co., Schilling 1, nw ne ne nw 18-1n-2e	30	1875
Rockhill, Foster 20, n½ sw sw 8-1n-2e	100	3528
Ohio, Murray 19, se nw sw se 7-1n-2e	94	3528
Texas, Centralia 80, nw c sw sw 4-1n-2e	gas inp	2074
Heyduck 13, se ne se sw 4-1n-2e	91	2089
Hawthorne 43, nw ne sw se 5-1n-2e	147	2230
Johnson 37, sw c ne se 6-1n-2e	gas inp	2036
Friedrich 23, c e½ ne nw 7-1n-2e	219	3488
Hawthorne 42, c w½ sw ne 8-1n-3e	105	3535
Shanafelt 9, nw nw ne 16-2n-2e	35	2110
Buckley 10, sw ne nw se 33-2n-2e	165	2130

Montgomery County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Dorton Edge Oil Co., Taman 1, se c se 24-10n-5w	¶2.0	645
Cunningham, Wagoner 1, se ne ne 29-11n-5w	*	635
Babler et al, Street 5, ne nw nw se 31-11n-5w	*	608

Richland County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Pure, Rule 2, c e½ nw nw 7-4n-10e	218	2906

Shelby County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Allied Oil Co., Buzzard 1, se sw ne nw 35-9n-3e	*	1590

Wabash County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Hayes et al, Gimpel 1, c se ne 9-1n-13w	*	2749
Illinois Prod. Co., Spickerman 1, se nw sw 26-1s-13w	*	2654
N. V. Duncan, Helm 3, ne se nw 15-3s-14w	*	1844
W. W. Gray, Fee 7, ne ne sw 15-3s-14w	125	1822
Longhorn Oil Co., Helm 3, nw ne nw ne 23-3s-14w	330	2515

Washington County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Gulf, Stanton 5, c w½ ne nw 26-1s-1w	189	3169
Watt, Kentenhouse 1, nw nw nw 27-2s-4w	*	1357
Williams, Pijut 2, se sw se 18-3s-1w	29	1343

Wayne County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Spangler & Smith, Fitch 1, c ne se sw 3-1n-8e	35	3148
Pure, Carrison 1, c e½ nw sw 36-2n 7e	257	3080
Hubble Cons. 1, w½ nw sw 28-2n-8e	102	3090
Texas, Headlee 1, sw ne se sw 4-2s-7e	93	3278
Harris 2, se nw nw nw 9-2s-7e	255	3310

White County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Hal Compton et al, Potter 3, sw ne se 8-4s-14w	92	2699
Cherry & Kidd, Calvin 1, sw se ne 8-4s-14w	205	2713
Gray 5, sw se se 8-4s-14w	60	2839
Gray 2, nw ne ne 17-4s-14w	110	2716
Magnolia, Cox 1, nw ne se 27-4s-14w	1270	2098

*Failures; †Junked; ¶Million cu. ft. gas.

Summary of Drilling Operations in the United States, Week Ended November 2, 1940

	WELLS COMPLETED							*PERMITS FOR NEW WELLS				
	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1940	Total this Date 1939	This Week	Total this Month	Total 1940	Total this Date 1939	Year Total 1939
Alabama	1	.....	.....	1	.....	9	1	.....	.....	.....	.....	.....
Arizona	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Arkansas	2	1	.....	1	275	159	200	1	14	129	198	223
California	17	15	1	1	13,981	947	910	97	167	961	912	1,174
Colorado	.....	.....	.....	.....	.....	7	19	.....	.....	.....	.....	.....
Florida	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Illinois*	68	48	3	17	7,579	3,407	3,229	85	415	3,888	210	893
Indiana	26	11	8	7	1,036	429	221	.....	.....	.....	.....	.....
Kansas	39	26	2	11	37,171	1,699	1,217	48	212	1,746	1,337	1,583
Kentucky	6	4	.....	2	357	304	555	.....	.....	.....	.....	.....
Louisiana	35	28	3	4	5,737	1,442	953	9	154	1,402	1,198	1,449
Michigan	26	13	3	10	2,165	1,038	1,272	28	126	979	1,232	1,419
Mississippi	4	4	.....	.....	1,640	157	11	.....	.....	.....	.....	.....
Missouri	1	.....	.....	1	.....	26	.....	3	10	22	.....	.....
Montana	5	5	.....	.....	743	167	125	.....	.....	.....	.....	.....
Nebraska	7	3	.....	4	2,385	27	1	3	28	46	.....	.....
New Mexico*	9	8	.....	1	1,637	555	558	5	39	495	196	293
New York†	15	15	.....	.....	49	849	522	.....	.....	.....	.....	.....
North Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio	31	6	18	7	23	876	818	.....	.....	.....	.....	.....
Oklahoma	42	25	4	13	6,042	1,799	1,759	57	182	1,555	1,759	2,059
Pennsylvania†	53	35	15	3	78	3,049	1,314	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Tennessee	3	1	.....	2	24	11	4	.....	.....	.....	.....	.....
Texas	171	118	6	47	86,949	8,468	8,150	272	1,108	9,622	8,741	10,269
Utah	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....
West Virginia	22	2	17	3	20	509	468	.....	.....	294	510	718
Wyoming	3	3	.....	.....	350	136	123	.....	.....	1	.....	.....
Total this week	586	371	80	135	168,241	26,076	22,432	608	2,455	21,140	16,293	20,080
Total last week	544	367	34	143	154,014	25,490	21,894	399	1,847	20,473	15,804	20,080
Total this year	26,076	18,820	1,579	5,677	9,121,297	.....	.....	.....	.....	.....	.....	.....

* This tabulation includes those states where weekly data are available; figures for Illinois date from October 15, 1939; New Mexico from August 1, 1939.
† Includes water-input wells.

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth

ILLINOIS—Continued

Superior, Fitton 6, sw sw ne 27-4s-14w	58	2615
Givens 3, ne ne se 33-4s-14w	73	2780
Tide Water, Dennis 2, sw se ne 33-4s-14w	154	2964
Dennis 3, se sw ne 33-4s-14w	149	2594
Wiser Oil Co., Chapman 2, ne se sw 23-6s-8e	100	3172
Exchange-Ohio, Pearce 6, se se ne 11-6s-9e	210	2278
Eason Oil Co., Storms 8, sw se se 15-6s-9e	35	2254

Indiana

Blackford County—

C. J. Clamme, Fee 1, sw sw se ne 10-23n-11e	¶.03	966

Decatur County—

Hoosier Public Utility, Bowlby 214, nw ne 11-9n-9e	¶0.13	842
Bowlby 215, c w½ sw ne 11-9n-9e	¶0.18	917
Bowlby 216, ne nw ne ne 11-9n-9e	¶.10	916

Floyd County—

Floyd Dev. Co., Coffman 3, nw c se 32-1s-5e	•	870

Gibson County—

Continental, Cooper 6, c w½ sw se 12-3s-14w	50	2508
Bozeman 14, sw sw se 24-3s-14w	63	2115
Midwest Dev. et al, Rainey 1, sw sw sw 11-2s-9w	•	1690
Lewis Prod., Cooper 14, sw se nw 13-3s-14w	200	2866
Papoose Oil Co., Cooper 12, ne nw sw 13-3s-14w	197	2859
Lewis Prod., Cooper 4, ne ne nw 24-3s-14w	•	2535

Hancock County—

Oakland Gas, Vail 1, lot 10, Bradley add. 26-17n-5e	•	918
Mrs. F. L. Andis, Fee 1, se c nw nw 24-17n-6e	¶	957

Hendricks County—

Griffin Oil, Hobbs 1, sw c ne se 17-15n-2e	•	1400

Henry County—

Knightstown Nat. Gas, Cox 2, n½ sw se sw 36-16n-9e	¶0.01	888

Jay County—

Ellen Burke, Lyons 2, se c se 23-22n-14e	•	1103

Madison County—

Frontier Pet., Montgomery 1, se nw sw 8-21n-8e	2	992

Posey County—

Cherry & Kidd et al, Maier 2, ne se ne 32-3s-13w	60	2456
Continental, Mumford 1, sw nw nw 33-3s-13w	70	2463
Tide Water, Doll 1, se c sw se 33-3s-14w	114	2811
J. E. Crosbie, Inc., Keck Hrs. 6, ne se ne 34-3s-14w	75	2530
W. C. McBride, Sworders 4, nw ne sw ne 4-4s-14w	200	2625

Randolph County—

J. M. Seip, Catey 1, c s½ nw 9-19n-13e	¶1.0	1047
Elliott 1, ne nw sw 9-19n-13e	•	67
Edwards 1, c ne 20-19n-13e	¶0.3	1084

Spencer County—

Hendrickson et al, Parsley-Seay 2, c n½ se 32-7s-6w	¶0.16	612

Vanderburg County—

Weir & Sparrow, Nurrenbern 1, ne c se sw 5-7s-11w	5	1051

Kansas

Barton County—

Cities Service, Bauman 6, cw½ e½ sw 6-16-13w	3000	3344
Gulf, Howard 5, csl sw ne sw 8-20-11w	621	3326
Larlo, Zahorsky "B" 5, cw½ se ne 23-20-11w	3000	3273
I. T. I. O., Bryant "B" 2, cs½ ne nw 26-20-11w	14	3289

Butler County—

Blakeslee et al, Wilson 1, cw½ sw ne 28-27-4e (OTD 1934)	18	2013
Adair-Morton, Brandt 14, cwl nw se ne 15-28-7e	714	2747
Simpson, Lessman 1, nw ne nw 20-29-4e	50	1904

Cowley County—

Stelbar, Joslin 1, ne sw ne 21-30-4e	•	2907
Ryan, Hunsaker 2, ne sw ne 13-30-5e	732	2866
Hunsaker 3, nwc ne 13-30-5e	1458	2847

Ellis County—

Wentz, Riddler 1, cs½ sw sw 1-11-18w	2462	3501
Nadel et al, Carmichael 2 cn½ ne ne 11-11-18w	•	3478
Phillips, Peavey 8, cs½ se se 13-11-18w	647	3417
Larlo, Welter "E" 1, cn½ sw nw 2-12-18w	•	3718

Ellsworth County—

Phillips, Hagy 2, ce½ nw sw 16-16-10w	3000	3384

Greenwood County—

Shaffer et al, Imthurn 18, cn½ se 4-23-13e (OTD 1639)	5	1799
Marylyn, Gray 1, nw sw nw 24-24-9e	•	2243
Weideman, Lewis "A" 4, nw nw se sw 25-27-8e	25	2741
Glaman, Roberts 1, cw½ se nw 17-28-11e	•	1250
Robinson, Meeks 1, se sw ne nw 17-28-11e	•	50

Jefferson County—

Stark et al, Dark 3, cnw nw 4-10-20e	¶9.4	1425

Leavenworth County—

McLaughlin et al, Ragan 1, cnw nw 3-10-20e	¶4.86	1455

Marion County—

H. L. M. Oil Co., Neuwirth 1, cn½ ne se 30-17-4e	•	2458

McPherson County—

Sunray, Pearson 2, cw½ nw ne 18-20-5w	209	3388
Tulsa Oil, Nelson 2, cw½ sw ne 19-20-5w	3000	3330

Reno County—

Dutton et al, Green 1, sec 8-23-4w	•	2629
Amerada, Wilson 3, se nw sw 23-23-4w (OTD 3619)	331	3407
Olsen et al, Duckworth 3, nwc ne 23-23-4w (OTD 3602)	90	3404

Rice County—

McPherson et al, Cramm "D" 2, ne se sw 15-19-9w	2379	3200
Colorado Pet., Keesling 1, ce½ ne nw 10-20-9w	390	3233

Rooks County—

Broadview, Livengood 7, cs½ nw nw 11-9-16w	2810	3219
Bay, Kempe "A" 2, ce½ se sw 31-10-17w	3000	3627
Skelly, Opdycke 14, cs½ nw nw 32-14-13w	1624	2943
Helmerich & Payne, Boxberger 4, swc ne 21-14-14w	2625	3111
Stearns et al, Olson "B" 2, ce½ se ne 28-14-14w	•	3285
Southern, Hinderliter 2, swc nw 33-15-13w	1967	3341

Stafford County—

W. W. Dr., Boyd 1, cw½ sw sw 4-21-14w	•	3654
Moore, Johnson 5, cn½ ne ne 13-24-11w (OTD 3769½)	3000	3802
Selby, Blackburn 1, ce½ se ne 13-24-12w	•	3885

Kentucky

Christian County—

C. D. Kopp, Cowherd 1	•	80

Daviess County—

Baldwin Oil, Westerfield 6	210	1416
A. D. Schaffer et al, Johnson 3	125	1499
C. E. Daugherty, Leet 1	•	1509

Hancock County—

Fordsville Oil, Ashworth 2	7	597

Ohio County—

J. W. Tuttle, Berry 10	15	197

South Louisiana

Anse La Butte

Stanolind, Rand 1	350	3780
Bering, Deborah 1	•	lcn
Schufford, Delaureal & Billeaud	•	lcn
Iberia, Martin A-1	43	2205

Caillou Island—

Texas, State 6	345	6768

Fausse Point—

Sun, Kling & Walet 6	•	1360

Golden Meadows—

Texas, LL&E 15	309	10,380
Brown & Woods, Charamie 1	120	5502
Bateman, Collins 2	194	5230

Gueydan—

Fohs, Mulvey 1	¶	10,500

Iowa—

Magnolia, Waite 14 (wo)	504	8212

Jefferson Island—

Texas, Jeff. Island 6	259	8854

Jennings—

Shell, Conover Comm. 12	321	?887

LaFitte—

Texas, Kerner 1	59	4465

LaPlace—

Pan American-Shell, Mill 2	23 ¶3.9	8985

Neale—

Atlantic, Musser-Davis 2	353	8436

New Iberia—

Wm. Helis, Bullock A-2	165	4172
Texas, Duhe 19	291	7628

North Crowley—

Vincent & Welsh, Harmon 2	275	8903

Port Barre—

Pan American, Cormier 8	•	6018

South Crowley—

Humble, Leger 2	470	9072

Sulphur—

Union Sulphur, Fee 871	176	7655

Ville Platte—

Continental, Tate 2-9	63	10,010

North Louisiana

Bossier Parish (Sligo)—

Triangle Dr. Co., Chatman 3, 18-17n-11w	120	3137

Caddo Parish (Wildcat)—

Walter Newstadt, McKee 1, 35-16n-15w	•	5201

Caddo Parish (Pine Island)—

Red Bank Oil Co., Solly 1, 28-21n-15w	100	1515
Lloyd A. Farr, Goodwin 1, 33-21n-15w	50	1611
Magnolia, Doan-Thigpen 27, 6-20n-15w	10	1505
Doan-Thigpen 28, 6-20n-15w	90	1505

La Salle Parish (Jena)—

H. L. Hunt, Goodpine A-3, 9-7n-3e	220	4447

La Salle Parish (Olla)—

Arkansas Fuel Oil, Neugent Unit A-1, 25-10n-2e	30	2365
Tremont Lbr. Co. C-9, 34-10n-2e.	•	3950
H. L. Hunt, Urania Lbr. Co. 1, 25-10n-2e	135	2389
Placid Oil Co., La. Central Lbr. Co. 47, 35-10n-2e	145	3188
La. Central Lbr. Co. 53, 2-9n-2e	190	2433

Union Parish (Monroe)—

Memphis Nat. Gas, Lankford 12, 12-22n-3e	¶0.25	2201

Webster Parish (Cotton Valley)—

Magnolia, Grant-Wadley 1, 18-21n-9w	350	8538

Michigan

Allegan County—

H. C. Nelson, Kroeze 2, se se sw 9-4n-14w	120	1480
James E. Flanigan, Dubbink 1, sw nw sw 15-4n-14w	•	1519
Bell-Marks, Lubbers 2, nw sw sw 15-4n-14w	•	1555
Transwestern Oil Co., Brink A1, nw nw ne 16-4n-14w	70	1495
Brink 4, se ne se 16-4n-14w	•	1535
W. L. McClanahan, Busscher 4, se sw ne 16-4n-14w	300	1510
Hoffman 5, ne se se 16-4n-14w	125	1507
Gordon Oil Co., Koopman 4, se ne nw 16-4n-14w	140	1500
Union Oil Co., Bond 1, sw sw se 10-4n-13w	100	1611

Arenac County—

Don Rayburn, Yenior 2, nw sw ne 22-19n-3e	800	2879
Marsh 3, sw nw ne 26-19n-3e	25	2057

Clare County—

Freeman Oil Co., Medbury 1, n½ se nw 23-19n-3w	•	3859
Sun, State A1, c n½ ne se 35-20n-6w	45	3798

Gladwin County—

Sun, Cameron 1, c w½ sw sw 11-18n-2w	15	3836

Isabella County—

Cities Service, Parsell 4, nw sw se 8-16n-3w	65	3735
Unit A-1, c sw 21-16n-3w	¶3.5	1256
McClanahan & Whites, Leosh 1, nw ne nw 17-16n-3w	310	3737

Kent County—

M. B. Keeler, Bristol 1, nw 32-9n-11w	•	2281

Montcalm County—

Belvidere Oil Co., Curtiss 1, nw se se 20-12n-6w	•	1302
Bonninghausen 1, se nw nw 13-12n-6w	¶0.5	1302

Osceola County—

Taggart Bros. Co., Reber 51, c ne 1-19n-7w	¶5.5	1555

Ottawa County—

Gordon Oil Co., Wadsworth 1, ne ne nw 2-6n-13w	50	1804
Smith Pet. Co., Karadux 1, sw nw nw 23-5n-16w	•	1490

St. Joseph County—

O. A. Avery, Dunnworth 1, sw ne sw 13-6s-11w	•	2670

Van Buren County—

R. B. Newcombe, Sutherland 1, se ne ne 29-1s-16w	•	995
Turner Pet. Co., Adams 1, ne ne se 25-4s-13w	•	1025

Mississippi

Yazoo County (Tinsley Dome)—

Union Prod. Co., Stevens 12, 12-13n-3w	460	4814
Harris 2, 19-10n-2w	400	4959
Robinette Est. 3, 19-10n-2w	380	4969
Magnolia, Milner 4, 6-10n-2w	400	5321

Missouri

Bates County—

Browning et al, Culver 1, sw ne se 18-39n-29w	•	630

United States Well Completions—*Continued*

Montana

Glacier County (Cut Bank)—
Glacier Pro. Co., State 7, nw nw sw 16-33n-5w 335 2942
Par Oil Co., Tribal 3, ne nw sw 7-32n-5w 133 2913
Santa Rita O. & G. Co., Tribal 12, c sw sw 10-35n-6w 200 2952
Tarrant-Barnes, Butler 1, c nw se 15-34n-6w 10 2987
Toole County (Kevin-Sunburst)—
Texas Co., Swears 9 se sw sw 9-35n-2w 65 1608

Nebraska

Nemaha County—
Clampitt et al, Lambert 1, nec sw 26-4n-15e ..... • 2732
Otoe County—
Risk et al, McCord 1, nw sw sw 15-8n-14e ..... • 724
Richardson County—
Harper et al, Sibbernson 2, se nw nw 20-1n-16e 792 2245
Sibbernson 3, sw ne nw 20-1n-16e 793 2257
Pawnee, Sandrock 1, nw se nw 20-1n-16e 800 2260
Jackson et al, Conklin 1, c ne ne 30-1n-16e ..... • 2632
Shaffer et al, Koetke 1, c se nw 29-3n-16e ..... • 2651

New Mexico

Eddy County—
Fullerton Oil Co., Little 2-B, se sw sw 34-18s-31e ..... • 3624
Sam Sanders et al, Berry 5, ne ne 24-17s-27e 1 535
Western Prod. Co., Keeley 2-C, c nw nw 13-17s-29e 90 2594
M. Yates III, Bassett & Birney, Fedell 1, nwc ne 35-18s-26e.... 147 1180
Lea County (Maljamar)—
E. G. Woods et al, Simon 2-B, c se ne 30-17s-32e 343 3757
Lea County (Penrose)—
N. G. Penrose-J. C. Clower, Walden 2-A, c se nw 15-22s-37e..... 131 3720
Lea County (Skelly)—
Skelly, Sims 13, c nw ne 4-23s-37e 75 3813
Lea County (Vacuum)—
Texas Co., State 4-Z, c sw nw 2-18s-34e 780 4710
McKinley County (Hospah)—
Petroleum Prod. Corp., Hospah 13, se nw 1-17n-9w 70 1561

New York

Allegany County—
Walter J. McEnroe, Hoover farm, Bolivar 6 1624
Sawyer & Williams, Torrence farm, Bolivar 7 1274
C. H. Christman, Underwood farm, Scio 3 1532
Bradley Prod. Corp., Monder farm, Alma 5 1446
Monder farm, Alma 5 1436
Albert Oil Co., Easton farm, Alma. 6 1352
Scio O. & G. Co., Fuller farm, Scio 5 832
Fulmer Oil Co., Jordan farm, Independence 2 1268
Karl-Weller Oil Corp., Karl farm, Genesee 5 1366
Sloan & Zook, McDivitt farm, Bolivar 5 1366
Water Intake Wells—
N. V. V. Franchot, Murphy farm, Bolivar 1543
Dick Oil Co., Cameron farm, Bolivar 1448
McEbenwood Oil Co., Pingrey farm, Andover 1348
H. W. Patterson, Fuller farm, Scio ... 843
Rufus Scott et al, Scott farm, Bolivar 1574

Ohio

Licking County—
Ohio Fuel Gas, Long 2..... • 2440
Lorain County—
Ohio Fuel Gas, Caley 1.....¶0.05 2350
Medina County—
Preston Oil, Garver 3..... 10 412
Ohio Fuel Gas, Hatch 1.....¶0.07 3557
Ensign 1 .....¶0.03 2600
Meigs County—
Bowman, Jones 1 .....¶0.1 1647
Bengel, Pierce 1 .....¶0.03 655
Shuster, Wood 1 ..... • 933
Monroe County—
Luburgh, Swartz 26..... 2 1050
Ward, McFadden 1 .....¶0.15 1306
Morgan County—
Crowley, Bowman 3 .....¶0.66 948
Harris, Rabberman 3..... • 1025
Muskingum County—
Palmer & Geisinger, Swingle 1....¶0.32 4056
Kinsey & Spencer, Lot 8..... • 3340
Noble County—
Harper, Hayes 1 ..... 3 239
Permian Co., Heddleson 1.....¶0.07 1391
Barnsville Dev. Co., Deal 1.....¶0.04 1740
Perry County—
Ruth, Post 2 ..... 6 1213
Pure Oil, Williams 1 ..... 1 3312
Miller 3 ..... • 3372
Stark County—
White Est., Booth 1 .....¶0.23 4535
Summit County—
Burtner et al, Geig 1.....¶2.78 4118
Tuscarawas County—
Brendel, Amos 1..... ¶0.9 4982
Dessecker 7 ..... ¶0.7 5101
Ohio Fuel Gas, Held 1..... ¶0.1 4521
Washington County—
Knob Oil Co., Pryor 9..... 1 1674
Porter et al, Carr 1..... ¶0.3 1411
Cline et al, Cline 1.....¶0.08 2089
Best Run O. & G. Co., Warren 1...¶0.04 1320
Beren et al, Male 1..... • 1440
Herlan, Drecker 1..... • 1799

Oklahoma

Carter County—
Batson, Williams 5, cwl sw se ne 20-4s-2w 206 2147
Cox & Hamon, Herrel 2, sw sw se sw 20-4s-2w 40 2218
Herrel 3, se se sw 20-4s-2w..... 100 2270
Gibson et al, Walker-Voorhees 4, nw ne nw ne 20-4s-2w..... 200 2253
Creek County—
Sinclair-Prairie, Kieffer 34, sw ne sw se 17-17n-12e .....gas inp. 1544
Kieffer 36, sw ne sw se 17-17n-12e .....¶0.04 154
Grady County—
Lone Star, Glover 3, cnw ne 27-5n-8w ..... • 4425
Jefferson County—
Bridwell, Seay 2, se nw ne sw 29-6s-5w ..... • 1673
Garvin County—
Thompson, Trust 1, sw se sw 22-4n-2e ..... • 3424
Hughes County—
Ramsey, Viersen 1, sw se se 5-5n-10e 172 4529
Kay County—
Zephyr, State 1, ne nw sw 13-26n-2w ..... • 3928
Armer et al, Deimer 1, ne nw sw 28-27n-1w ..... • 3650
Logan County—
Danciger, Richards 1, c ne nw 3-17n-4w 200 4908
Marshall County—
Pure, Metz 1 (105), ne nw nw 28-5s-7e 2176 5080
Okfuskee County—
Droppleman, Hensley 1, nw ne ne 3-11n-8e ..... • 3631
Tutus et al, Frank 2, nw sw nw 25-11n-8e 1356 3452
Oklahoma County—
Ohio, Johnson 1, sec 25-14n-4w (OTD 6700) ..... ¶1.0 6360
Okmulgee County—
Jordan, Checote 1, nw nw se nw 1-13n-13e 3 2077
Cowan et al, Crune 10, csw sw 3-14n-14e 5 1222
Klingensmith, Doneghy 1-A, nw ne sw 2-15n-11e ..... • 1842
Slater Bros., Chism 1, se sw se 13-15n-12e ..... • 1674
Osage County—
Millard et al, Osage 1, sec 5-25n-10e • 2158
Magnolia et al, Butts 6, nw ne sw 14-26n-6e 230 2904
Payne County—
Crosbie, Murphy 1, nec sw 20-19n-2e 549 4712
Pontotoc County—
Amos, Norman-Flemming 1, sw ne se 13-5n-4e 25 2560
Morrison et al, Kroeger 1, se sw ne 25-5n-6e .....¶16.5 1550
Huddleston, Lewis 1, sw sec nw 29-5n-8e ..... • 1254
Pottawatomie County—
Patterson, Nichols 1, se nw se 28-6n-5e 350 2782
Seminole County—
I. T. I. O., Soketheche 2, nwc ne 1-7n-6e (OTD 4318) ..... • 4396
Newsom et al, Choya 1-A, sw nw sw nw 21-7n-6e 40 2342
Mid-Continent, Ferguson 1, ne sw sw 18-7n-8e (OTD 3471) 90 3484
Pure, Tiger 2, se ne sw 3-8n-5e (OTD 4163) ..... • 3953
Rudco, Fish 6, swc nw 36-8n-6e (OTD 4204) 30 4233
Justin, Rhea 1, cs½ se sw 12-9n-6e 25 4061
Stanolind, Grisso 1, ne nw sw 15-9n-6e 53 2924
Baker et al, Davis 1, sw nw ne 3-10n-5e (OTD 4644) ..... • 4500
Wise Dr. Co., Berryman 1-A, ne sw ne nw 10-10n-8e 25 1674
Stephens County—
Sunray, Hefner 2, se nw sw 12-1n-5w 120 6242
Tulsa County—
Grooves, Dunn 1-A, cse se 36-18n-12e 6 1100
Wagoner County—
James Pet. et al, Robson 1, sw se ne nw 21-19n-15e 25 1015
K. L. G. Oil Co., Robson 7, ce½ sw sw ne 21-19n-15e 6 980
Bailey, Thompson 1, cnw ne 22-19n-15e 10 932

Pennsylvania

BRADFORD DISTRICT
Lincoln & Bing, Connelly ..... 2 ....
Pine Run Oil Co., Bing 130-1-2-3-4-6 ..... 4 ....
Bradford Tr. Co., 16 wells ..... 16 ....
Forest Oil Corp. ..... 1 ....
Forest Pet. Corp. ..... 1 ....
Niagara Oil Corp. ..... 1 ....
N. V. V. Franchot, Franchot & Meridan ..... 25 ....
N. V. V. Franchot, Campbell ..... 15 ....
Messer Oil Corp., Loop, 2 wells... 7 ....
Water Intake Wells—
Pine Run Oil Co., Bing 130-1-2-3-4-6 ....
Forest Oil Corp. ....
Forest Pet. Corp. ....
Niagara Oil Corp., 3 wells ....
BUTLER-ARMSTRONG DISTRICT
Warren Oesterling, Warren Oesterling ..... ¼ ....
MIDDLE DISTRICT
Fleming ..... ¾ ....
Bellview Oil Co., lot 531 ..... 3 ....
Fryburg Motor Co., Davis..... 1 ....
M. M. Master, Rickenbrode ..... • ....
NEW YORK-PENN GAS FIELD
G. L. Cabot, Morley ..... • ....
Allegany Gas Co., Berry ..... ¶ ....

SOUTHWESTERN PENNSYLVANIA
Allegheny County—
Homer Nixon, Parkes 1 ..... • 1865
Armstrong County—
Local Co., Piert 2.....¶0.05 3210
Clarion County—
Geo. Hall, Fairman 2.....¶0.13 2815
Peoples Nat. G., Brocius 2.....¶0.12 2946
T. W. Phillips G. & O., Wolfgang 1.¶0.07 3543
Owens-Illinois Glass, Heinrick 1...¶0.06 2871
J. Lasher et al, Truitt 1.....¶0.02 3254
Greene County—
Wahler Powers, Katchanovitch 1..¶5.12 1401
Equitable G. Co., Smith 1.....¶0.27 2320
J. B. Orndoff, Scott 3.....¶0.25 3000
Carnegie, Murdock 1.....¶0.12 3098
Indiana County—
T. W. Phillips G. & O., Campbell 1.¶0.18 3384
Peoples Nat. G. Co., Cribbs 1.....¶0.02 4225
Westmoreland County—
Apollo Gas Co., Anderson 1.....¶0.41 1174
Peoples Nat. G., Swank 1.....¶0.06 3202

Tennessee

Pickett County—
R. S. Sterling et al, Rains 1, 4½ mi se Byrdstown on Wolf river near Dry Creek 24 520
R. S. Sterling et al, Storie 2, 3½ mi se Byrdstown ..... • 835
Fentress County—
Travis Smith et al, Wright 2, 9 mi w Jamestown on Obey River.... • 1005

Texas Panhandle

Carson County—
Gulf, Cooper 32 ..... 204 3190
Shell, Bryan 6-A 24 3208
Texas Co., Cooper 16 ..... 408 3180
Gray County—
Adams-McGaha & Solow, Morse 3 170 2707
Bell O&G Co., Morse 8 ..... 210 2572
Phillips Pet., Morse 4 ..... 440 2767
Texas Co., C. S. Barrett 9..... 248 3303
Wilcox O&G Co., Worley-Reynolds 37 ..... 167 3110
Hutchinson County—
Buck Oil Co., Jameison 4..... 85 2922
Clay Bros. Dr. Co., Carver 2..... ¶5.8 3242
Fraber-Hodges Corp., Ware 4..... 223 3035
Gulf, Christian 2 ..... 113 3046
Kewanee Oil Co., Lewis 47..... 401 3002
Harry Steckoll et al, Whittenburg 7 20 3066
Wheeler County—
Alma Oil Co., Johnson 3 ..... • 2510

West Central Texas

Brown County (Wildcat)—
J. E. Whiteside et al, Dickson 1.. • 1040
Callahan County—
Earl Johnson et al, Hickman 3.... • 506
Coleman County—
Anzac Oil Corp., Morris 7-C..... 203 2183
Comanche County—
Lone Star Gas, Watkins 1 ..... ¶0.9 2873
Jones County—
Falls Ref. Co., Robinson 3 ..... 306 1882
J. E. Farrell et al, Kahler 2..... • 3952
J. D. Sandefer Jr. et al, Wienke 1.. 40 2587
Shackelford County—
Hickok & Harry Reynolds, Swenson 2 ..... 40 1500

United States Well Completions—*Continued*

East Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Kilgore Area—		
East Whaley Oil Co., Elder 5 (blk 119)	1500	3572
M. T. Flanagan et al, Walker-Tidal 14 (91.3-ac)	1200	3640
Shell, Watson 86 (385-ac)	6000	3699
Longview Area—		
Deep Rock Oil Corp., Jones 29 (61.12-ac)	7200	3615
T. W. Lee et al, Green 2 (13-ac)	20	3731
B. F. Phillips et al, McBride 3 (57.8-ac)	960	3628
Stanolind, Everett 5-B (62.1-ac)	750	3646
Navarro County (Wildcats)—		
J. R. Bunn-A. J. Willis, Cheney Est. 1	•	3238
L. A. Demmer et al, Bain 1	•	3545
Titus County (Talco)—		
W. B. Hinton et al, Robertson 1	150	4308
Humble, Phillips Bros. 4	562	4364
Wood County (Wildcat)—		
Amerada Pet. Corp., Lloyd 1	•	6506
Harrison County (Waskom)—		
Ark. La. Gas Co., Furrh 1, J. Short sur	¶22.25	6180
Shelby County (Wildcat)—		
Superior, Pickering Lbr. Co. 5, D. Gonzales sur	•	4525

North Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (Hull-Silk)—		
L. T. Burns et al, Gray-Thweatt 1	1392	4348
Chapman & McFarlin, Wilson 4-F	768	3787
Deep Oil Dev. Co.-C. B. Christle, Finley 3	1608	4314
A. R. Dillard-White Duncan, Nichols 12	926	4412
W. B. Omohundro et al, Rutty 4	707	3790
Archer County—		
Shell, Colgan 10	138	1463
Clay County—		
Apache Oil Co., Henderson 5	•	1170
Johnson & Kouri, Taylor 1-40	•	1355
Truitt Roach et al, Roach 3	•	251
Clay County (Shell-Henderson)—		
Shell, Henderson 5 (pb to 3270)	1360	3600
Clay County (Wildcats)—		
Akin-Dimock & Costley, Fultz 1	•	1305
British-American O. P. Co., Stine 1	•	2329
Consolidated Oil, Shumake 1	•	1375
W. H. Metzner et al, Boddy 1	•	2218
Cooke County (Walnut Bend)—		
Sun, Snuggs 7	264	4895
Cooke County—		
Humble, Hellman 6	375	1311
Haskell County (Wildcat)—		
Bradford-Robertson et al, Coody 1	•	3502
Jack County—		
B. C. Gilmore et al, Walker 2	•	564
Reimers-Walker Oil Corp., Mathis 1	•	450
Paul Steed & Cooper, Mathis 2	333	2870
Jack County (Wildcat)—		
N. Mayes et al, Wilkes 1	•	597
Montague County (Bonita)—		
Sinclair Prairie, West Bonita Unit 1, (pb to 5263)	4385	5433
Wichita County (K-M-A)—		
Consolidated Oil, James 14	1816	3990
Dorian & Barnes, Barnes 1	720	4050
Grace & Murphee, Burnett 1	408	4136
Hammon-Hanlon & Buchanan, Fassett-Tuttle 29	488	3971
Hanlon & Buchanan, Fassett-Tuttle 26-G	464	4062
Wichita County—		
C. O. Doss et al, Perkins 1-A	•	1254
J. E. Farrell et al, Waggoner Bros. 38-D	9	230
R. W. Gutzler et al, Jenne 8	•	251
L. V. Hull et al, K. & K. 12	•	712
Geo. Proctor et al, Foster-Allen 1-B	•	948
Wichita County (Wildcats)—		
E. P. Bowen et al, McKinley-Carden 1	•	6109
Bert Ligon & Morrison, Mueller 1	•	2018
Norwood-Dillard & Wood, Stine 1	•	1580
F. G. Spicer et al, Huebner 1	•	1870
Wilbarger County (Fargo)—		
Humble, Anderson 1	560	3278
Wilbarger County (Consolidated)—		
Consolidated Oil, Waggoner Est. 8-CC	810	4012
Young County—		
Bohner & Watson, Prideaux 13	•	597
P. C. Burns et al, Campbell 4	9	1004
L. T. Burns et al, Rogers 3	65	888
Rogers 5	135	882
Rogers 6	150	890
N. H. Martin & Sons, Hamilton 11-A	9	897
Hamilton 4-C	11	875
Sams & Prideaux, Prideaux 2	6	683
Prideaux 3	4	670
E. D. Willis et al, Stewart 2-G	19	848
Wise & Jackson, Cullers 4	5	604
Young County (Wildcats)—		
Home Oil Co., Rothel 1	•	968
Geo. Keith Jr. et al, Wolverton 1	•	1003

Texas Gulf Coast

Company, Well and Location	Init. Prod. Bbls.	Depth
Anahuac—		
Humble, Drought 5-C	280	7120
Dyersdale—		
Cockburn, Burkett 3	358	4121
Green's Lake—		
Sun, Hughes 10	135	6902
Hillje—		
Ohio, Swanson 2	81	5237
Bowles, Koenig 2	85	5241
Ogburn—		
Richardson and C. C. Dr Co., Baskins 1	120	6938
Rowan—		
Stanolind, Hodnett 1	200	9006
Seabreeze—		
Sun, Sundholm-Carlson 1	854	8477
Segno—		
Gulf, Wing 40	528	8152
Humble, Kirby 29-B	408	8185
South China—		
Titanic, Fontenot 2-C	•	7950
Tomball—		
Humble, Doege 6	510	5580
West Columbia—		
Hogg, Fee 15 (wo)	126	5923
Waller County—		
H. E. Williams, Harris 1, 6 mi nw Katy	•	7518

South Texas

CORPUS CHRISTI DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Aransas County—		
Atlantic Ref., Guaranty Bond & Mortgage 1-A (McCampbell)	•	9492
MAR Prod. Co., Nat. Standard Oil Co. 1 (McCampbell)	75	7220
Colorado County—		
Moore & Ahren, Kinkler 1 (Wildcat) 10 mi se New Ulm	•	5012
Jackson County—		
Humble, Vanderbilt State B-4 (West Ranch)	•	5805
Magnolia, West 111-A (West Ranch)	850	5769
West 112-A (West Ranch)	1100	5756
Pure, Spacek 1 (Wildcat) 4000 ft sw Ganado, new fld	500	6650
Jim Wells County—		
Arkansas Fuel Oil Co., Sachtleben 5 (Wade City)	650	4925
Atlantic Ref., Lagging 1 (Wade City)	¶1.0	4799
Tide Water, Natho 1 (Orange Grove)	500	5076
Nueces County—		
Sinclair Prairie, State-Nueces Bay 2 (974) (E. White Point) new sd.	500	6300
Southern Minerals Corp., Bertram et al 4 (Stratton)	675	6745
Wellington Oil Co. of Del., Dugger 13 (S. Clara Driscoll)	400	6609
Refugio County—		
Quintana Pet. Corp., Heard 42 (Tomoconnor)	1500	5925
Victoria County—		
Dunn-Moreland Oil Co., Lindner 1 (Placedo)	500	4744
Humble, Nave et al 2 (WC) 5 mi sw Bloomington	•	6338
Texas Gulf Prod. Co., Rogers 1 (North McFaddin)	¶1.56 & 10	5200

LAREDO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Duval County—		
Pridwell Oil Co., Rogers 1-D (WC) 10 mi nw San Diego	•	4655
Sam Cunningham, Escobar 1 (WC) 1200 ft nw Buffalo Texas well	•	3846
Government Wells Oil Co., Lundell 47 (Lundell)	63	1546
Humble, Central Securities Co. 1 (WC) 1½ mi nw Crestonio	•	5050
Magnolia, Duval Co. Ranch Co. 5 (190) (Cedro Hill)	23	1432
Duval Co. Ranch Co. 4 (289) (West Casa Blanca)	•	1813
Duval Co. Ranch Co. 14 (58) (Lundell)	58	1526
Jim Hogg County—		
Sun, Thaxton 11 (Colorado)	225	3009
Webb County—		
J. W. Cash & R. D. Reynolds, Wilson 3 (WC) 12 mi n-nw Oilton	•	2324
Complete Oil Well Service, Hirsch Est 1 (WC) 17 mi se Encinal	•	...
Zapata County—		
McCollum Explor. Co., de Gutierrez 1 (WC) Gutierrez subd	•	1280
Jay Simmons, Yaeger-Strohman 5 (Glen)	250	2197
E. A. Thompson et al, Quinlan 1 (WC) ch 4, extends Lopeno fld	¶25	2262

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Atascosa County—		
Walter R. Pope, Countiss 1 (WC) AB&M sur	•	795
Frio County—		
Falcon Seaboard Oil Co. & Dunwoody, Malms 1 (Pearsall)	70	3950
Val Verde County—		
Joiner Oil, Sellers 1 (WC) I&GN sur	•	2250

West Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Andrews County (Emma)—		
Osage Dr. Co., University-Phillips 1	1297	4304
Andrews County (Means)—		
Humble, Means 82	205	4530
Andrews County (Wildcat)—		
Phillips Pet. Co., Cowden-Embar 1	¶1.8	4335
Cochran County (Duggan)—		
Texas Co., Mallet 1-G	121	5065
Crane County (Jordan)—		
Gulf, University 4-N	8313	3590
Shell, University 6-B	794	3635
Texas Co., University 5-D	3467	3560
Ector County (Foster)—		
Atlantic Ref. Co., Foster 2-B	476	4170
I.T.I.O. Co., Johnson 2-B	1236	4148
Rhodes-Tompkins et al, Maurice-Sinco 1	956	4226
Schermerhorn Oil Corp., Johnson-Amerada 4-C	319	4327
Ector County (Goldsmith)—		
Gulf, Goldsmith 315	1848	4236
Goldsmith 316	1067	4193
Goldsmith 318	1801	4239
Ector County (North Cowden)—		
Tide Water, T. P. Land Trust 2-A	1482	4195
Ector County (North Goldsmith)—		
Magnolia, Cowden 1	184	4400
Gaines County (Seminole)—		
Amerada Pet. Corp., Mann 3	771	5244
Magnolia-Atlantic, H. & J. 12-219	800	5266
H. & J. 4-251	725	5330
Ohio Oil, Gibbs 3	639	5297
Tippett 4	542	5280
Gaines County (Wasson)—		
Amon Carter, Moore 8-45	1181	5045
Amon Carter-Phillips Pet. Co., Wasson 4-B	1143	5000
Hockley County (Slaughter)—		
Texas Co., Slaughter 11	711	4985
Runnels County (Beddo)—		
Homer Price et al, Williams 1	310	3584
Scurry County (Wildcat)—		
Coffield & Guthrie, Mooar 1	•	4511
Terrell County (Wildcat)—		
E. M. Thomasson et al, Felps 1	•	1720
Ward County (South Magnolia-Sealy)—		
Magnolia, Geo. Sealy 1-41	775	2901
Winkler County (Keystone)—		
M. J. Bashara & Sons, Fee 2-B	243	3384
J. R. Sharp et al, Jenkins-Gulf 1	235	3400
Yoakum County (Waples-Platter)—		
Geo. Livermore et al (was Sloan-Zook), Waples-Platter 1	161	5297
Yoakum County (Wasson)—		
Aloco Oil Co., Chatterton 3	681	5140
Miller-Texaco 6-B	1170	5196
Humble, Armstrong 6	588	5091
Bennett 9	967	5242
Magnolia, Mahoney 21	520	5191

West Virginia

Company, Well and Location	Init. Prod. Bbls.	Depth
Clay County—		
Pitts. & W. Va. G. Co., Summers 7763	•	1730
Wallbach O. & G. Co., Hanshaw 2	¶.17	1728
Jackson County—		
United Fuel Gas, Milam et al 4873	¶10.2	5055
Cherrington Corp., Boggess et al 1	¶7.0	5015
United Carbon, Perkins 6	¶6.7	5346
Columbian Carbon, Weatherholt 1	¶5.0	5316
Kanawha County—		
Columbian Carbon, Jones 1	¶1.49	5074
Hughart 1	¶.42	5106
Godfrey L. Cabot, McLean 3	¶.49	4894
Pleasants County—		
Hart Oil Co., Hart Hrs. 3	¶.05	1757
Putnam County—		
Leavee O. & G. Co., Hodge Bros. 1	¶1.2	997
Summit Gas Co., Burdett 2	¶0.29	1689
Ritchie County—		
B. B. Cox, Burwell 1	¶0.1	1940
Roane County—		
W. B. Hughes, Bradley 1	15	1773
J. Raines & Son, Fee 1	5	1618
Brawley Reed O. & G. Co., Gandee 1	•	1677
Upshur County—		
French Creek O. & G., Jones 1	¶0.05	2275
Wayne County—		
Huntington-Okla. G. Co., Brewer 7	¶0.45	2937
Industrial G. Corp., Adkins 1	¶0.33	2873
D. C. Stephens, Cyrus 1	¶0.12	2890
Wetzel County—		
Carnegie, Moore 1320	¶	3150
Soles 2	•	3200

Wyoming

Company, Well and Location	Init. Prod. Bbls.	Depth
Natrona County (Cole Creek)—		
General Pet. Corp., No. 5-16-s, c nw nw nw 16-35n-77w	150	4623
Sublette County (LaBarge)—		
North LaBarge Oil Co., Government 2, cel se ne 28-27n-113w	50	1050
Texas Co., Government 2-G, ne nw sw 27-27n-113w	150	1069

WILDCAT REPORT
New Starts and Completions

ALABAMA
COMPLETIONS

Madison County—W. W. Newman, Tr.'s Nichols 2, ne nw ne 2-6s-2e, gas show 295 ft and 320 ft, so 295-310 ft, abnd 323 ft, St. Louis.

ARKANSAS
COMPLETION

Columbit County—Louark Prod. Co.'s Longino et al 1, c nw se 10-18-20, elev 314 ft, Smackover 8297 ft, porosity 8336 ft, sw throughout, abnd 8405 ft.

CALIFORNIA
FIRST REPORTS

Kern County—Knob Hill Oil Co.'s No. 1, 34-30-22, rig, McKittrick area. Tide Water's KCL 56-8; 8-30-26, lcn, Strand area.

Ventura County—E. A. Bender's Farrell 1, 5-1-22, rig, Oxnard area.

KANSAS
FIRST REPORTS

Barton County—Continental's Borger 1, nw sw ne 33-16-14w, rig.

Cowley County—Shell's O'Neal 1, nec 27-32-3e, dr.

Ellis County—Lario et al's Potter "A" 1, c w½ nw sw 20-11-16w, rig.

Leavenworth County—McLaughlin et al's Thorp 1, c ne ne 27-10-20e, rig.

COMPLETIONS

Greenwood County—McKnab et al's Hess 1-A, nec nw 5-22-10e, 1½ mi n Pixlee pool, Bartlesville 1983 ft, Mississippi 2107 ft, hfw, abnd 2113 ft.

Marion County—Harrington et al's Belton 1, sec ne 30-17-4e, 2 mi sw Lost Springs pool, new pool, Mississippi 2398 ft, pay 2412 ft, td 2420 ft, pb 2417 ft, 15 bbls.

Rooks County—Gulf's Bruton 1, c e½ se ne 23-8-17w, 5 mi ne Dopita pool, Ft. Riley 1932 ft, Neva 2265 ft, Tarkio 2628 ft, Topeka 2820 ft, Base Oread 3074 ft, Lansing 3079 ft, Base Kansas City 3324 ft, Sooy 3392 ft, Arbuckle 3450 ft, abnd 3483 ft.

NORTH LOUISIANA
FIRST REPORT

Webster Parish—H. L. Hunt's Pardee Co. 1, se se 36-22n-10w, mat.

COMPLETIONS

Caddo Parish—Walter Newstadt's McKee 1, nw se 35-16n-15w, elev 237 ft, massive anhydrite*4665 to 4915 ft, sw, abnd 5201 ft, electric log run to 5070 ft.

SOUTH LOUISIANA
FIRST REPORTS

St. Tammany Parish—W. T. Burton's State-Lake Pontchartrain 4, in lake 10 miles w of Mandeville, lcn; State- Lake Pontchartrain 5, 5 m sw of Mandeville, in lake, lcn.

MICHIGAN
FIRST REPORTS

Allegan County—W. Spencer Cook's Clark 1, nw ne ne 22-3n-14w, dr.

Ingham County—Tom McDaniel's Kendall 1, nc nw nw 15-4n-1e, rig.

Moncalm County—G. D. Wiles' Jaqua 1, sw se se 23-11n-10w, rig.

COMPLETIONS

Kent County—M. B. Keeler's Bristol 1, nw 32-9n-11w, Traverse 2229 ft, abnd 2281 ft.

Ottawa County—Smith Pet. Co.'s Karadux 1, sw nw nw 23-5n-16w, Traverse 1429 ft, abnd 1490 ft.

Clare County—Sun's State A-1, c n ne se 35-20n-6w, Dundee 3794 ft, td 3798 ft, initial pump production 48 bbls, new fld.

Van Buren County—Turner Pet. Co.'s Adams 1, ne ne se 25-4s-13w, abnd 1025 ft.

MISSOURI
COMPLETION

Bates County—C. C. Browning et al's Culver 1, sw ne se 18-39n-29w, abnd 630 ft.

NEBRASKA
FIRST REPORT

Lancaster County—Krueger et al's Roe 1, ne se sw sw 5-7n-7e, lcn.

Richardson County—McAlpine et al's Tieken 1, c s½ se sw 3-1n-15e, ru mach.

COMPLETIONS

Nemaha County—Clampitt et al's Lambert 1, nec sw 26-4n-15e, 11 mi se Auburn, Mississippi 2178 ft, Hunton 2638 ft, abnd 2732 ft.

Otoe County—Risk et al's McCord 1, nw sw sw 15-8n-14e, Nebraska City townsite, temp abnd 724 ft.

OKLAHOMA
FIRST REPORTS

Hughes County—Wrightsman Oil Co.'s Perkins 1, swc ne 3-9n-8e, lcn. Scruggs Dr. Co.'s Black 2, nw ne ne 13-9n-10e, pits.

Okfuskee County—Coogan et al's Davis 1, sw se ne 20-11n-9e, lcn.

Pontotoc County—Simpson-Roodhouse et al's Montpelier Trust 1, swc nw 20-2n-6e, rig, Catlett et al's James 1, nwc ne 19-5n-4e, dr.

Pottawatomie County — Vierson et al's Meyers 1, se ne ne 1-11n-6e, rur.

COMPLETIONS

Lincoln County—Berkey et al's Hoffman 1, sec 18-12n-6e, 4 mi n Prague pool, Verdigras 3290 ft, Senora 3358 ft, abnd 3446 ft. Berkey et al's Tedford 1, nec nw 28-12n-6e, Prague townsite, Senora sd 3370-3405 ft, abnd 3405 ft. Caroline Oil Co.'s Dean 1, swc 28-16n-4e, 8 mi n Chandler pool, abnd 140 ft. Oklahoma Oil Corp.'s Berry 1, sec nw 28-16n-5e, 4½ mi s Agra pool, Prue 3380 ft, abnd 3446 ft.

Osage County—Peters & Norbla et al's Osage 15, se nw sw 16-22n-9e, new hor, East Hominy pool, Arbuckle 2636 ft, td 2661 ft, 4000 gals acid,, 10 bbls.

Seminole County—Newsom et al's Choya 1-A, nw sw nw 21-7n-6e, new hor West Little River pool, top Calvin sd 2326 ft, td 2342 ft, shot 29 qts, 40 bbls.

Tillman County—Cline et al's Staley 1, sec nw 10-2s-19w, 5 mi n Frederick pool, Canyon 3568 ft, sd 4607-17 ft, sd 6493-95 ft, odor o & g, Sylvan 6494 ft, Viola 6510 ft, td 6750 ft, bailed light show oil, pb 5515 ft, shot 150 qts 5415-5515 ft, abnd, light show of oil.

EAST TEXAS
FIRST REPORT

Lamar County—T. M. Parmley et al's Townsend 1, nwc 110-ac tr, J. S. Porter sur, 1½ mi n Chicota, Fredericksburg between 320-420 ft, Trinity between 630-40 ft, dr 1190 ft.

COMPLETIONS

Navarro County—J. R. Bunn & A. J. Willis' Cheney Est. 1-A, north corner 84½-ac tr, J. White sur, elev 363 ft, Austin chalk 2337-2698 ft, Woodbine series 3152 ft. abnd in water sand 3170-3238 ft. L. A. Demmer et al's Bain 1, NEc 104-ac tr, J. Duncan sur, elev 356 ft, Pecan chalk 1718-1960 ft, Austin chalk 2455-2973 ft, abnd in Woodbine 3472-3545 ft.

Wood County—Amerada's Lloyd 1, ne part 164-ac tr, Wm. Barnhill sur, elev 444 ft, Pecan chalk 2592-2785 ft, Austin chalk 2572 ft, Woodbine 4483 ft. Georgetown 5275 ft, first Paluxy sand 6487 ft, abnd 6506 ft.

Shelby County—Superior Oil Corp.'s Pickering Lbr. Co. 5, D. Gonzales sur, abnd 4525 ft.

WEST TEXAS
FIRST REPORTS

Andrews County—Phillips Pet. Co.'s Cowden-Embar 1-120, c ne se T&P sec 8, blk 44, T-2-N, portable rotary.

Terry County—Gulf's Mallet L&C Co. 4, sw se PSL sec 5, blk X, dr 500 ft.

COMPLETIONS

Andrews County—Phillips Pet. Co.'s Cowden-Embar 1, nw¼ T & P sec 5 blk 44, T-2-N, elev 3238 ft, Yates sand 2610 ft and grains 2630 ft, first lime stringer 3470 ft, solid lime 3770 ft, initial 1,805,000 ft dry gas after nitro shot and acid in broken lime 4240-4335 ft.

Scurry County—Coffield & Guthrie's Mooar 1, c nw H&TC sec 334, blk 97, elev 2555 ft, anhydrite 860 ft, salt 870 ft, lime 1910 ft, abnd 4511 ft as hole 30 degrees off vertical.

Terrell County—E. M. Thomasson et al's Felps 1, SEc ne I&GN sec 73, blk 1, elev 2090 ft, lime 1265 ft, abnd 1720 ft.

NORTH TEXAS
FIRST REPORTS

Archer County — Young-Woody-Grace & Wood's Robertson 1, J. L. Llewellyn sur A-256, rotary.

Baylor County—British-American O. P. Co.'s Turbeville 1, ne ne se T&NO sec 198, lcn. Featherston-Spragins & Art's Green 1, sw part M. E. Trammell sur A-963, lcn.

Clay County—L. T. Burns et al's Patrick 1, se¼ Byers subd 82, spd. British-American O. P. Co.'s Stine 2, nw part lot 2, sec 2, Parker CSL sur, mim.

Jack County—E. G. Christie et al's (was W. L. Forbes) Davis 1, BBB&C sur A-94, co to dd from 2518 to 3700 ft.

Throckmorton County—Humble's Durham 1, nwc TE&L sec 1627, 6½ mi s Throckmorton, cem cas 702 ft.

Wichita County—C. C. Winfrey et al's Lawrence 1, sw¼ sec 27, Tarrant CSL sur, sp.

TEXAS PANHANDLE
FIRST REPORT

Hansford County—I. T. I. O. Co.'s O'Loughlin 1, c se W. C. Ry. sec 2, blk 2, 15 mi ne Spearman, mim for 5500-foot test.

SOUTH TEXAS
FIRST REPORTS

Bexar County—W. C. Simpson's Loppick 1, 10-ac lse, Igino Teyidor sur, 18 mi sw San Antonio, lcn.

Duval County—Carter & Rubsamen's Driscoll 1, sec 62, Santa Rosalia gr, lcn. Mills Bennett Prod. Co.'s Peters 1-B, 160-ac lse, ne¼, sur 178, n Highland's Peters 1, gas well, 24 mi n Bruni lcn.

Lee County—Marts & Beaven, Inc.'s Lawrence 1, 181-ac tr, William Simmons sur, 6 mi ne Elgin, mir.

Nueces County—S. E. W. Oil Corp. et al's Pfluger 1, e½ of sec 186, F. Z. Bishop Palo Alto subd, 1¼ mi se Richardson's McCoy 2, oil discovery on se flank Agua Dulce fld, ne oil prod at East Stratton. 600-ac lse, lcn.

Victoria County—Titanic Oil Co.'s Edwards 4, Desiderio Nira sur, 2400 ft w No. 3, mir.

Webb County—Jay Simmons' Hinnant 1, sur 126, lcn.

Williamson County—R. Clark's Freels 1, 91-ac tr, H. White sur, Byersville area, dr below 450 ft. H. G. Dickinson's Adamek 2, 89-ac tr, BBB and C sur, 1500 ft nw No. 1, lcn.

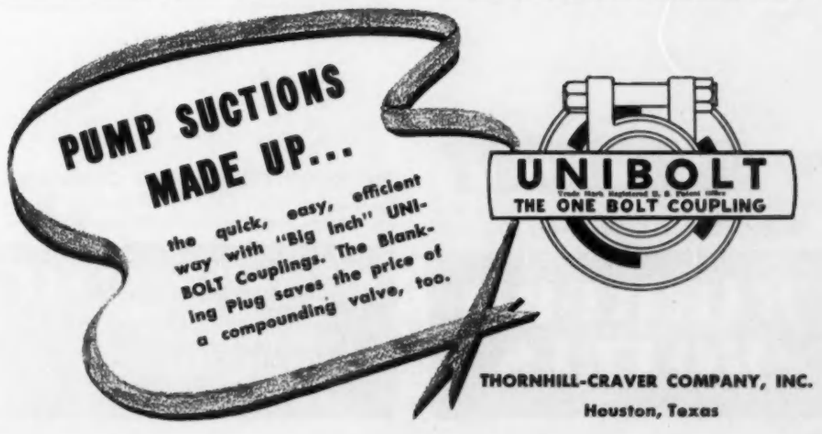
Zapata County—Texas Co.'s Jennings 137, 27,559.5-ac lse, Blas Maria gr, 30 mi sw Mirando City, 32,680 ft nw prod at Jennings fld, 1320 ft s, 60 deg e No. 136 dr hole, sp.

COMPLETIONS

Atascosa County—Walter R. Pope's Countiss 1, 40-ac tr, A. B. & M. sur, blk 146, abnd 795 ft.

Colorado County—Moore & Ahern's Kinkler 1, 80-ac tr, C. Rothemer sur, 12 mi w and little n Sealy, 10 mi se New Ulm, abnd 5012 ft, contracted by Coastal Dr. Co.

Duval County—Bridwell Oil Co.'s Rogers 1 D, 120-ac "D" lse, J. Poitevent sur 21, ab 467, 4200 ft sw prod at Bridwell fld, 10 mi nw San Diego, abnd 4655½ ft. Sam Cunningham's Escobar 1, lot 1, sh 2-C, Juan Jose Manuel de la Garza Falcon "San Francisco" gr, 1200 ft nw Buffalo Texas well, abnd 3846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ft, contracted by E. A. Graham. Humble's Central Securities Co. 1, 539.45-ac lse, Diego Hinojosa gr, 1½ mi nw Crestonio, Dubose area, abnd 5050 ft, Humble rig.

Jackson County—Pure's Spacek 1, 116.8-ac lse, William Menefee sur, 4000 ft sw Ganado, comp, est. 132 bbls, 5/32-in ch, 1400 lbs, tp, csg sld, perf 5211-18 ft, 24.1-gr, gas/oil ratio 3400/1, td 6650 ft, new fld, Pure rig.

Nueces County—Sinclair Prairie's State-Nueces Bay 2 (974) East White Point fld, 235.23-ac State tr 974, Nueces Bay, 837.6 ft w No. 1, sd 5850-62 ft, td 6300 ft, comp 135.75 bbls, ¼-in ch, 925 lbs tp, csg sld, perf 5850-62 ft, 40.4-gr, gas/oil ratio 1005/1, new sd.

Val Verde County—Joiner Oil Co.'s Sellers 1, sec 59, blk A, I&GN sur, abnd 2250 ft.

Victoria County—Humble's Nave 2, 1451-ac lse, Maria J. Traviesa gr, 3500 ft s, 50 deg e No. 1, 5 mi sw Bloomington, East McFaddin area, abnd 6338 ft, contracted by Allen & Morris.

Webb County—J. W. Cash and R. D. Reynolds' Wilson (Frost) 1, nw¼ sec 29, CCSD and RGNG sur, blk 2, 640-ac lse, 12 mi n-nw Oilton, abnd 2324 ft. Complete Oil Well Service and W. Stewart Boyle's Hirsch 1, sur 247, 17 mi se Encinal, lcn abnd.

Zapata County—McCollum Explor. Co.'s Guiterrez 1, Guiterrez subd of Charco Redondo gr, near Charco Redondo fld, abnd 1280 ft. E. A. Thompson et al's Quinlan 1, sh 4, por 19, Lopeno area, td 2262 ft, comp 25,000,000 ft gas per day, open flow, 870 lbs rp, extends Lopeno fld, contracted by Howard Staggs.

TEXAS GULF COAST

FIRST REPORT

Orange County—Keown Oil Co.'s Holland & Gordan 1, Claiborne West Survey, 3 mi n Orange fld, lcn 2000 ft test.

COMPLETION

Waller County—H. E. Williams' Harris 1, McCutcheon sur 54, 6 mi nw Katy, Cockfield 6460 ft, abnd 7518 ft, no shows.

NORTH TEXAS

COMPLETIONS

Clay County—Akin-Dimock & Costley's Fulton 1, se¼ blk 56, Byers subd, abnd 1305 ft. British-American O. P. Co.'s Stine 1, sw¼ sec 2, Parker CSL sur, abnd in granite 2325-29 ft. Consolidated Oil Co.'s Shumake 1, nw¼ sec 5, Bacon subd, abnd 1375 ft. W. H. Metzner et al's Boddy 1, sw¼ sec 50, Bacon subd, Canyon 1934 ft, abnd 2218 ft.

Haskell County—Bradford-Robertson et al's Coody 1, sw part N. Haggard sur A-154, Palo Pinto lime 3314 ft, abnd 3502 ft.

Jack County—H. Mayes et al's O. Wilkes 1, se part E. Smith sur A-524, abnd 597 ft.

Wichita County—E. P. Bowen et al's McKinley-Carden 1, near c blk 23, Wm. Anglin sur A-2, 1½ mi n Wichita Falls, lime 4495 ft, Bend 5557 ft, abnd in Ellenburger 6003-6109 ft. Bert Ligon & Morrison's Mueller 1, SEc Red River Valley Lands sec 50, abnd 2018 ft. Norwood-Dillard & Wood's Stine 1, H. Hastie sur A-98, abnd 1580 ft. F. G. Spicer et al's Huebner 1, nw¼ Red River Valley Lands sec 481, abnd 1870 ft.

Young County—Home Oil Co.'s Rothel 1, nec TE&L sec 217, abnd 968 ft. Geo. Keith Jr. et al's Wolverton 1, ne¼ TE&L sec 225, abnd 1003 ft.

WEST CENTRAL TEXAS

FIRST REPORT

Burnett County—Al Bellinger et al's Evans 1, swc of H. S. Smith sur, dr 670 ft.

COMPLETION

Brown County—J. E. Whiteside et al's Carl Dickson 1, north corner J. Grant sur 136, abnd 1040 ft.

WYOMING

FIRST REPORT

Campbell County—Continental and Texas Gulf Prod. Co.'s Government 1, c ne sw se 4-56n-69w, Rocky Point structure, lcn for 5000-ft test.

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MEN IN THE INDUSTRY'S NEWS

WILLIAM V. VIETTI has been made vice president and manager of Colombian Petroleum Company, subsidiary of The Texas Company that operates the Barco concession in Colombia.

Since early in 1938, Vietti has been manager of The Texas Petroleum Company, another subsidiary of the company. He has been located at Bogota, Colombia, and it is understood he will continue to make his headquarters there. J. O. Bower is the new manager of The Texas Petroleum Company.

Vietti joined The Texas Company in 1929 after several years of petroleum engineering work with other oil firms. He advanced to the position of senior petroleum engineer at Houston in 1933, and continued in this capacity until he moved to South America.

ALVIN C. RICHARDS, president of the Section of Mineral Law of the American Bar Association, last week announced the personnel of standing committees.

Members of the general advisory committee are D. M. Kelly, Butte, Montana; James C. Denton, Tulsa; D. F. J. Strother, Welch, Virginia; P. C. Spencer, New York; T. J. Michie, Pittsburgh; Charles I. Francis, Houston; James L. Shepherd, Jr., Houston; Stanley B. Houck, Minneapolis; Robert E. Hardwicke, Fort Worth.

Members of the committee on oil are Roy C. Ledbetter, Dallas; Cecil Morgan, Shreveport; F. A. Calvert, Saginaw, Michigan; Joel A. Lipscomb, Atlantic Refining Company, Philadelphia, and L. G. Owen, The Carter Oil Company, Tulsa.

Members of the committee on gas are Robert D. Garver, Kansas City; Freeman T. Eagleson, Columbus, Ohio; Osman E. Swartz, Charleston, West Virginia, and Charles H. Keffer, Amarillo.

HERBERT G. KIESWETTER, regional sales director for United States Rubber Export Company, has left New York for a several weeks' trip to Argentina and Brazil, during which he will visit Argentina oil fields.

C. L. CLAUSEL, of A-1 Bit Company, discussed "The B & R Side-Wall Line Core Barrel" before the Houston Geological Society last week.

CLARENCE LOHMAN, Jack Blalock and Edward Kliewer, Jr., last week organized Polaris Oil Company as a Texas corporation with headquarters in Houston.

HOUSTON CIVIC LEADERS who commanded the Community Chest drive that went over the top last week include three oil men, Sayles Leach, vice president of The Texas Company; John R. Suman, vice president of Humble Oil & Refining Company, and Joe Russell, assistant to executive vice president of Gulf Oil Corporation. The remaining member of the "leader quartette" is W. A. Sherman, president of Magnolia Airco Gas Products Company.

E. W. KRAMPERT, Casper geologist, has been named Wyoming State Geologist, succeeding Dr. S. H. Knight, who resigned recently. Krampert entered the Rocky Mountain district to do mapping and detail work on the Wellington-Fort Collins field for Roxana Petroleum Company, later was chief geologist for Prairie Oil & Gas Company of Wyoming, resigning to engage in practice as a consulting geologist. In 1935, he joined the staff of Superior Petroleum Company, resigning a year later to again engage in consulting practice. His appointment is effective until March 1, 1945.

FRANK MITCHELL, 40, district sales engineer for Atlas Supply Company, at Odessa, Texas, died October 23 following a 10-day illness. In the employment of the company for 4 years, he was previously with Tips Gas Engine Company.

R. G. HAMILTON, manager of Schlumberger Well Surveying Corporation, conferred with division managers in Tulsa last week. Those attending included E. F. Stratton, Illinois; R. Leteron, Wichita; W. A. Clark, Houston, and L. W. Storms, Corpus Christi.

R. W. LAUGHLIN, of Laughlin-Simmons & Company, Tulsa well-elevation engineers, has taken additional office space in Oklahoma City to co-ordinate field work and to train field engineers. R. E. Moser and P. T. DuBose are connected with the Oklahoma City office.

C. A. PECK has joined the tool steel department of Allegheny Ludlum Steel Corporation, Pittsburgh, and has been stationed in the Chicago office. For several years prior to his association with the company, Peck was in the tool steel business for himself.

C. L. McMULLEN, former vice president of Gisholt Machine Company, Madison, Wisconsin, has joined The Buda Company, Harvey, Illinois. Prior to his affiliation with Gisholt Machine Company, he was with Caterpillar Tractor Company, Peoria, Illinois.

W. M. BLACK, general sales manager of the American Manganese Steel Division, American Brake Shoe & Foundry Company, since 1935, and vice president since 1936, has been appointed president of the company. He succeeds W. E. Crocombe, who now heads the American Forge Division of the company. Black, who has been with the company since 1912, will make his headquarters at Chicago Heights.

C. A. CHILDERS, JR., former engineer with Happy Belting Company, is now associated with The National Supply Company at Seminole, Oklahoma. A petroleum engineering graduate of Oklahoma University, Childers, prior to his employment with Happy Belting Company, was a trainee engineer with Stanolind Oil & Gas Company, and was stationed a number of months in South America.

FRANK C. FOSTER, assistant production superintendent at Los Angeles for Tide Water Associated Oil Company, was honored by a dinner October 25 tendered by 100 employes of the company. on the completion of his thirty-fifth year of service with the company. Those in attendance were former members of the old Salt Lake-Western Division who had at one time worked for Foster, traveling from posts scattered throughout California to pay their respects to their former chief.

RUSSELL CANTWELL, a former member of the staff of the Independent Petroleum Association of America, is now associated with Aero Exploration Company, Tulsa, as vice president. He served a number of years as assistant manager of the Tulsa Chamber of Commerce.

BEN BAYLESS, mechanical engineer for Shell Oil Company, has been transferred from Pampa to Tulsa. John Orrell and Cy Hutcheson, production department, have been moved from Tulsa to the Kansas office.

MALCOLM C. OAKES, Oklahoma Geological Survey, discussed the "Pennsylvanian of Northeastern Oklahoma" at the regular monthly meeting of the Tulsa Geological Society November 4 at the University of Tulsa.

F. D. BALLENTINE, land department superintendent for the Continental Oil Company in the Texas-New Mexico division, was critically ill late last week in a Fort Worth hospital following a major operation.

ALEX McCUTCHIN, East Texas producer and drilling contractor, has moved his headquarters from Tyler to Dallas, where offices will be maintained in the Continental Building.

C. L. WOOLEY, R. A. Nipper and I. L. Robinson last week organized Budco Oil Company as a Texas corporation with headquarters at Pampa.

RICHARD HUGHES, geologist for Seaboard Oil Company, is checking wildcat operations from Grand Rapids, Michigan.

WENDELL B. FARRIS has been elected to the board of Home Oil Company, Calgary, Alberta, Canada, to fill the va-

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MEN IN THE INDUSTRY'S NEWS

cancy caused by resignation of Major General Victor W. Odlum, who resigned to accept command of the Second Canadian Division.

CLYDE H. YEAGER, 56, driller of Eastland, Texas, died October 24 in a Wichita Falls hospital from injuries received while on duty in the K-M-A field.

W. R. GRAALMAN, M. G. Rasbach and William Clark, all of Oklahoma City, last week organized Newoka Oil Corporation as an Oklahoma corporation.

DR. A. C. WALCOTT, former professor of geology at Northwestern University, recently addressed the Riverton Wyoming Geological Society.

R. A. MURPHY has left The Atlantic Refining Company to join Oil Field Maintenance Company. He will make his headquarters at Lafayette, Louisiana.

ADRIAN MOORE, Houston operator and contractor, is president of the Ex-Students' Association of the University of Texas.

GLEN E. COX, Shelby, Montana, has been appointed superintendent for Superior Petroleum Company at Kelvin field. He succeeds George R. Downs, who recently resigned to work as geologist for The Carter Oil Company at Bismarck, North Dakota.

J. J. JAKOSKY, president of International Geophysics, Inc., is making his headquarters at 1001 Missouri Street, Lawrence, Kansas, a move from his former office in Los Angeles.

WILLIARD D. PYE, former geologist for The Carter Oil Company, Tulsa, is now studying under a fellowship for graduate work and research in geology and sedimentation at the University of Chicago.

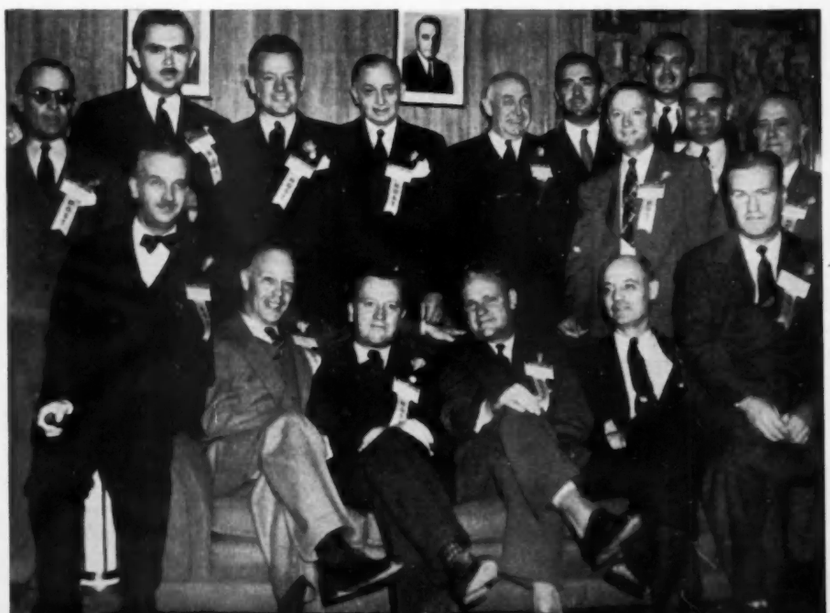
LUTHER H. WHITE, manager of land and geological departments, Deep Rock Oil Corporation, Tulsa, resigned effective November 1, to devote his time to personal interests.

E. R. BROCKWAY is land man and R. R. Porterfield is geologist at the new Fort Worth office of Devonian Oil Company. The territory includes West Texas and Southeast New Mexico.

E. R. ALBERT, JR., engineer for Baroid Sales Division, addressed the Shawnee Geological Society October 28 on "Well Logging Service."

ACUS EDWARDS, graduate of the University of Wyoming, is now employed in the geological department of Shell Oil Company, Tulsa. Ed Fitzman is also a new employe in the department working as log platter.

HECTOR MacDONALD, branch manager for Shell Oil Company at Para, Brazil, is vacationing in British Colombia.



Hosts for the party of the Mid-Continent Section of the Petroleum Division, American Institute of Mining & Metallurgical Engineers, held in Tulsa a week ago, included, seated, left to right: A. J. Kerr, Pittsburgh Equitable Meter Company; Steve Raphel, Bovaird Supply Company; E. Lloyd Byer, Parkersburg Rig & Reel Company; S. R. Clinkscales, Frick-Reid Supply Corporation; D. K. Hutchcraft, Clark Bros. Company, and Ray H. Smith, The Continental Supply Company. Standing, left to right, are J. E. Richard, National Tank Company; Bill Ducker, Bovaird Supply Company; Roy Bush, Merco Nordstrom Valve Company; R. C. Stametz, Oil Well Supply Company; D. W. McDay, Cooper-Bessemer Corporation; G. W. Probst, Clark Bros. Company; V. C. Canter, Frick-Reid Supply Corporation; B. A. Page, The Continental Supply Company; S. L. Stentz, National Tank Company, and J. S. Warren, Maloney Tank Manufacturing Company.

NOTES FOR THE Equipment Buyer and User

Rotary Connector

THE NATIONAL SUPPLY COMPANY

A rotary connector, designed to replace the conventional rotary hook with a yoke from which elevator links can be independently suspended, has been announced by The National Supply Company, Toledo, Ohio. Designated

National's Type D-6 Connector

Type D-6, it is intended for relatively light rotary use.

Drill pipe is handled in the usual manner when the rotary is employed, and a special adapter, described as easily attached to the swivel bail, provides a means of carrying the swivel with the regular elevator when drilling.

The arrangement of carrying the elevator links independently of each other is designed for increased flexibility in handling the elevator when running drill pipe, facilitating opening and closing of the elevator, while vertical suspension of each link provides a better balance of the loads on the elevator.

Carrying the swivel below the elevator links eliminates the practice of the links resting and pounding against the swivel, and eliminates the chance of the links bumping against the swivel bail or interfering with the rotary hose. The arrangement is especially applicable to drilling with portable masts. Vertical at all times, the links are part of a streamlined assembly which offers no interference with the mast structure.

Drilling Unit

OIL WELL SUPPLY COMPANY

A drilling unit, Model CT-1715, designed as a compact and portable assembly on steel skids and providing a direct-drive from an internal combustion engine through a hydraulic torque converter and geared speed increaser to a 17½-inch oilbath rotary of high-speed design, has been announced by Oil Well Supply Company, Dallas.

A hydraulic torque converter has been provided to supply smooth and flexible power-flow and a wide range of power and speed. Hydraulic drive is designed to cushion shocks inherent in rapidly turning a long string of drill pipe in torsion, and to contribute to long life of moving parts of the rotary, prime mover, drill pipe and bit.

Whether drilling requirement is for slow table speeds as in coring operations, or high table speeds ranging between 250 and 300 revolutions per minute, drive responds by changing the engine throttle setting. Throttle is regulated by a remote control at driller's position, and there are no other controls or clutches.

A vacuum brake is designed to absorb the slight drag of the converter fluid when the engine is idling and to prevent the table from turning when rotation is not desired.

The unit increases capacity of a compound-engine rig by releasing both engines for slush-pump drive without connection to the rotary. The hoist can be driven by the drilling-unit engine by means of a sprocket on the gear-box output shaft, and, similarly, the rotary can be driven by a conventional chain drive from the hoist to a sprocket on the rotary pinion shaft if the drilling-unit engine is shut down.

Circuit Breaker

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY

A small circuit breaker, designed for protection of lighting, appliance and motor circuits and combining a co-operative magnetic and thermal trip, has been announced by Westinghouse Electric & Manufacturing Company,

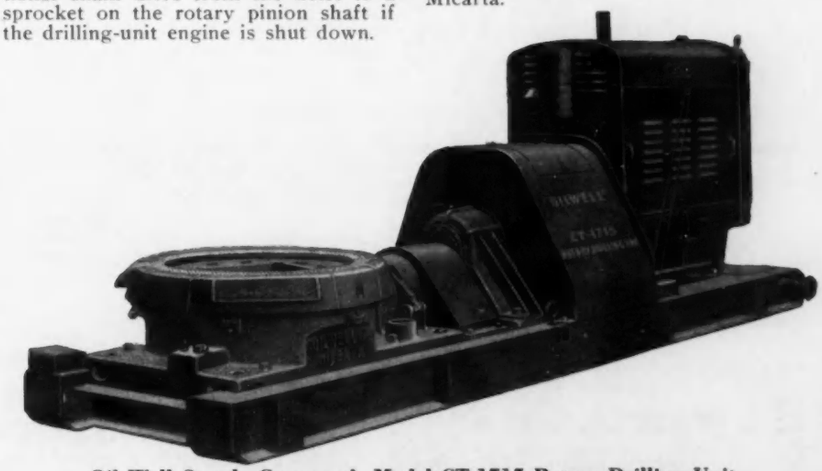
Westinghouse Quicklag Breaker

East Pittsburgh, Pennsylvania. Designated Quicklag, it is available in ratings of 15 to 35 amperes, single pole only, 250 volts AC and 125 volts DC.

A combination of bi-metal thermal and magnetic trip actions is designed to give the device the advantage of instantaneous trip on short circuits combined with the advantage of time-delay for momentary overloads such as caused by inrush currents.

The breaker has no live parts exposed to accidental contact, calibration is permanent and sealed against tampering, contacts are low-resistant, operating mechanism gives a quick make-and-break, and arcs resulting from heavy current interruptions are snuffed out by a grid assembly. Solderless terminals are used to facilitate connections.

Automatic operation is indicated by the handle position, which has a central tripped position, and current ratings are marked on the operating handle, which is trip-free. Case is of molded Micarta.



Oil Well Supply Company's Model CT-1715 Rotary Drilling Unit

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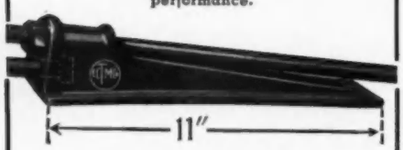

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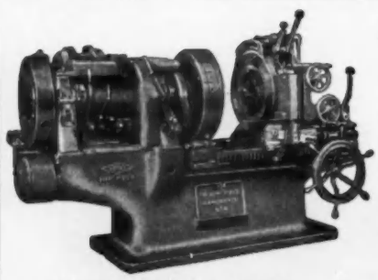

New Landis 4¾ Receding Chaser Pipe Threading Machine

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NOTES FOR THE Equipment Buyer and User

Tool Material

McKENNA METALS COMPANY

A straight tungsten carbide metal described as 15 percent stronger than any other tungsten carbide of the same hardness has been announced by McKenna Metals Company, Latrobe, Pennsylvania.

Designated Kennametal K4, it has a hardness of 92.0 Rockwell A and

Machining with Kennametal K4

strength of 223,000 pounds per square inch, transverse rupture test. It has the same thermal conductivity as other tungsten carbide tool materials, 0.19, and is described as particularly applicable to machining of hard, crumbly materials such as cast iron, bakelite, porcelain, hard rubber, glass, casein, silicon aluminum, hard bronze and other non-ferrous materials.

Wyatt Metal & Boiler Works Expands Houston Plant

Wyatt Metal & Boiler Works has recently completed an expansion program at Houston, including a 50 percent enlargement of the office building, a new building for use of inspectors and storage of records, a new fabricating plant for light work, installation of a new 5-ton crane, and a new storage yard equipped with a locomotive crane.

Production thus far in 1940 has far exceeded that of any previous period in the company's history.

Purolator Products Increases Capacity of Newark Plant

Purolator Products, Inc., has completed an additional 15,000 square feet of factory space at its plant at Newark, New Jersey, according to E. B. Headden, vice president in charge of production.

Hose

Hamilton Rubber Manufacturing Company, Trenton, New Jersey, has issued a bulletin on its line of mandrel-built hose in 100-foot lengths designed for use as steam hose, fuel oil hose, air hose, water discharge and other purposes.

Spraragen, French, Armstrong Honored by Welding Group

The American Welding Society, holding its annual meeting in Cleveland last week, honored three men for outstanding work in the welding field.

The Samuel Wylie Miller Memorial Medal was presented to William Spraragen, technical secretary of the society, for conspicuous contributions to the art and science of welding during 21 years in the field.

W. Spraragen

The Lincoln Gold Medal was presented to H. J. French and T. N. Armstrong, Jr., metallurgists with The International Nickel Company, for a paper judged the most important contribution to the development of welding. It was on "Weld Hardening of Carbon and of Alloy Steel," and was presented at the society's annual meeting in Chicago last year.

H. J. French

T. N. Armstrong

C. R. Dale Affiliates with Technical Oil Tool Corporation

C. R. Dale, inventor and developer of instruments used in subsurface studies in oil fields, has consolidated his interests with those of Technical Oil Tool Corporation, Los Angeles, and will be actively engaged as a member of the company's technical staff.

Dale has engaged in the development of oil-well surveying instruments and

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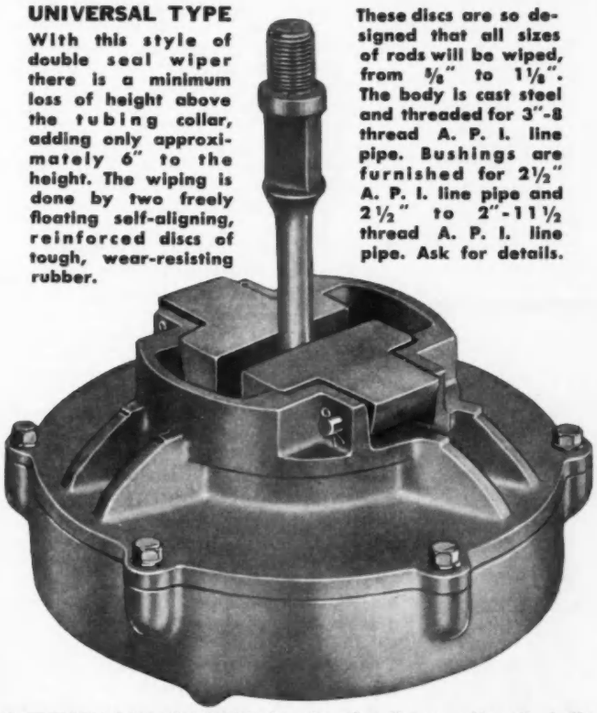
These discs are so designed that all sizes of rods will be wiped, from ⅝" to 1⅛". The body is cast steel and threaded for 3"-8 thread A. P. I. line pipe. Bushings are furnished for 2½" A. P. I. line pipe and 2½" to 2"-11½ thread A. P. I. line pipe. Ask for details.



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Parts of Gas Lift Valves	Pump Shafts
Bottom Hole Regulators	Pressure Gauges

Geophysical Instruments

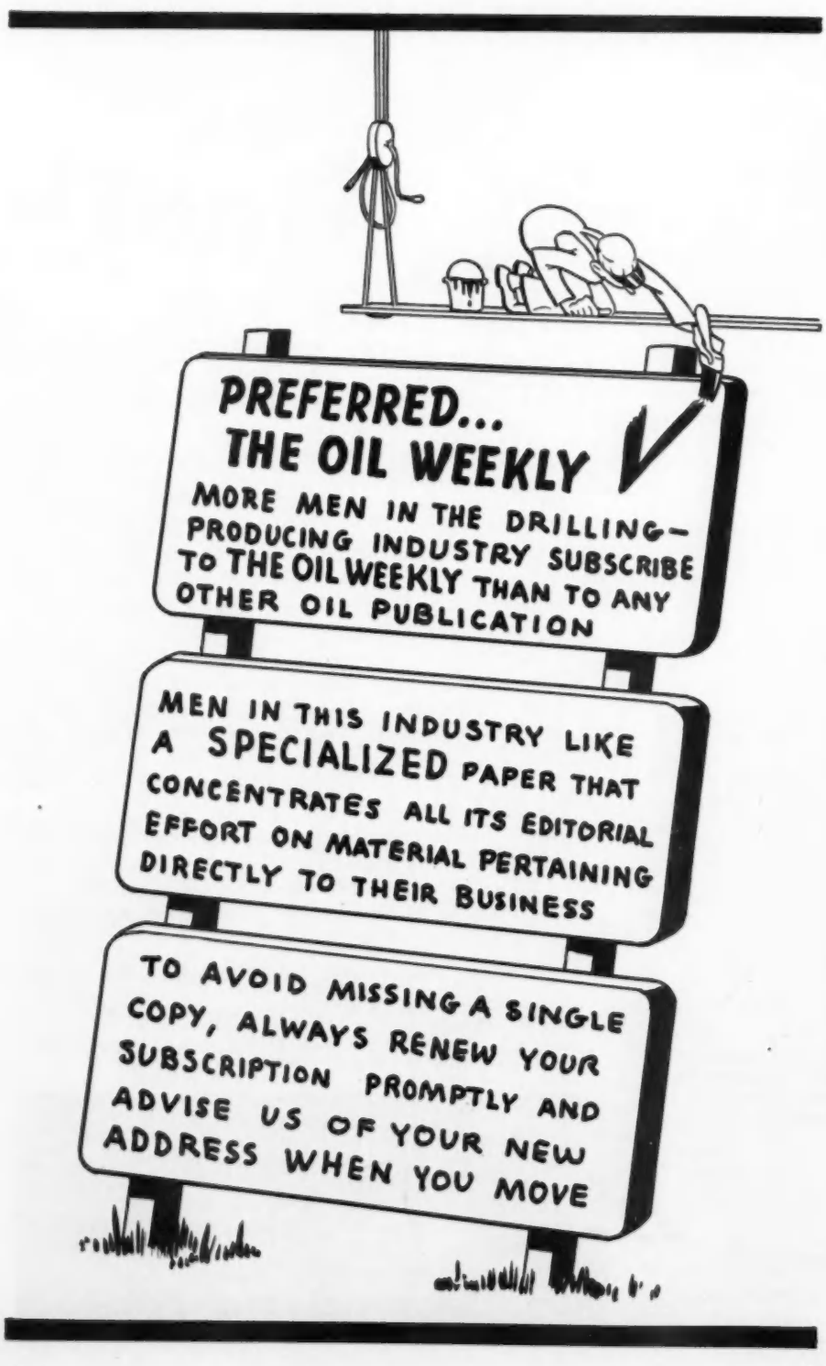
has developed the photoelectric oil-well water-locating instrument. The company plans to announce shortly a new subsurface recording system which Dale has had in development for some time and which has seen field application principally in continuous measurement of well temperatures and pressures.

Engines

The Buda Company, Harvey, Illinois, has issued Bulletin OF-1005 describing its Series 1879 convertible oil-field engines. Model PHG-1879 is convertible from natural gas or butane to full Diesel operation, while Model PHD-1879 is convertible from full Diesel to natural gas or butane operation. The engines are designed to permit changeovers in the field without special equipment in less than two hours. There are no heads, pistons or cylinders to change. The engines are intended to solve the problem of operating drilling or pipe-line pumping engines on the fuel most available and advantageous to use.

Water Softener

Worthington Pump & Machinery Corporation, Harrison, New Jersey, has issued Bulletin W-210-B27 on its hot-process water softener. The equipment incorporates a chemical mixer, chemical proportioner, heater, reaction - settling chamber, and filter. The bulletin describes features of the softener and is illustrated by pictures and line-drawings.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Edward D. Maltby Company Moves to New Building

Edward D. Maltby Company, distributor of ball, roller and needle bearings, last week moved to its own building at 1718 South Flower Street, Los Angeles. A fire-proof structure, it includes general and private offices, store and stock rooms, display rooms, literature and reading rooms, and has parking facilities in the rear.

The company is factory representative for Marlin-Rockwell Corporation, Shafer Bearing Company, American Roller Bearing Company, Roller Bearing Company of America, and Chicago Rawhide Manufacturing Company.

Larkin Packer Names W-K-M As Export Representative

Larkin Packer Company, St. Louis, has named W-K-M Company as export distributor, with export headquarters at 74 Trinity Place, New York. W-K-M Company maintains full-time representations in South America and the West Indies, with special representatives touring other leading export points.

Rollway Bearing Company Erecting Plant Addition

Rollway Bearing Company, Syracuse, New York, has started construction of a plant addition for bearing assembly and shipping facilities. On its completion, re-arrangement of present plant departments will be made.

Twin Disc Clutch Opens New St. Louis Branch

Twin Disc Clutch Company, Racine, Wisconsin, last week opened a new branch office at 1701 Delmar Boulevard, St. Louis, to facilitate service of clutches, power take-offs, and hydraulic drives in the Illinois oil fields.

Henry Wirry, of the company's factory engineering staff, will handle sales and engineering at the new office. Complete stocks of all types of replacement parts is being maintained.

Flexible Hose

Pennsylvania Flexible Metallic Tubing Company, 72 Street & Powers Lane, Philadelphia, has issued Bulletin 53-G describing its Penflex flexible hose for distillate and fuel oil use, gasoline hose, and tank wagon hose. The product is offered in ten types, with choice of three couplings. The bulletin gives specifications and prices.

Nickel Alloys

"Nickel Steel Topics," house magazine of The International Nickel Company, 67 Wall Street, New York, contains two items of interest to the industry," Nickel-Copper Steel Makes Good Record in Drill Pipe" and "Alloy Valve Pullers Last Longer."

Nickel Alloy

Nickel Steel Topics, published by The International Nickel Company, 67 Wall Street, New York, has in its October issue an article on "Nickel-Copper Steel Makes Good Record in Drill Pipe."

Pipe Repairs

M. B. Skinner Company, South Bend, Indiana, has issued Catalog 41 describing its line of repair clamps, service fittings, drilling methods and equipment. Well illustrated, it gives complete dimensions, installation instructions and engineering data on all items.

Squeaks from the Bull Wheel

Faithful

"Mose, do you think it right to leave your wife at the washtub while you spend your time fishing?"

"Oh, yassuh. Mah wife don't need no watchin'. She wuk jes as hard as if'n Ah wuz dere."

Individualist

It was during the impanelling of a jury that the following conversation occurred:

"You are a property holder?"

"Yes, your Honor."

"Married or single?"

"I have been married for five years, your Honor."

"Have you formed or expressed an opinion?"

"Not for five years, your Honor."

Gold—This Must Be Old

Mrs. Mac—"My little boy has just swallowed a ten-dollar gold piece."

Neighbor—"Gracious, is the child in danger?"

"No, thank goodness, his father's out of town."

Radio Quiz

"What is the difference between a weasel and an easel?"

"A weasel is a little man, and an easel is something to sit on."

Easy to Please

"What does your husband like best for breakfast?"

"Oh, anything I don't happen to have in the house."

Heredity

Young Ezra Hankins is gettin' to be quite literurry. He had three pieces in the county paper this week.

He comes of a literurry family. His ma put over a thousand pieces in a crazy quilt oncet.

One Track

"Next to a beautiful girl, what do you consider the most interesting thing in the world?"

"When I'm next to a beautiful girl, I don't bother about statistics."

Time Wasted

Little Emily had been to school for the first time.

"Well, darling, and what did you learn?" asked her mother on Emily's return.

"Nothing," sighed Emily hopelessly, "I've got to go back tomorrow."

Habit

Two friends, who had not seen Macpherson for some years, called at his house on Saturday evening. Mrs. Macpherson answered the door.

"Does Macpherson live here?"

"Ay. Just carry 'im in!"

Timid Doubt

"Please, sir, I think you are wanted on the telephone."

"You think! What's the good of thinking?"

"Well, sir, the voice at the other end said, 'Hello, is that you, you old idiot.'"

Friends and Influence

"Have you ever speculated on why you are so popular in your neighborhood?"

"No, except that I told my neighbors I always play the saxophone when I get lonely."

Encouraging

"It's so good of you, doctor, to have come this far to see my husband."

"Not at all, madam, not at all. I have a patient next door, and I thought I'd kill two birds with one stone."

Tall Story

Yes, sir, when that bear chased me I jumped for a limb twice as high as my head, but I missed it.

That was tough luck. Did he hurt you much?

No, while I missed the limb going up, I grabbed it coming down.

Two Ideas

"I'll bet you think twice before leaving that wife of yours in the evenings."

"I'll say. First, I have to think up an excuse for going out, and then a reason why she can't go with me."

Logic

These biscuits are smaller than usual, aren't they?

Yes, I made them smaller so that you would have less to find fault with.

Grin and Bear It

Dad, what is an optimist?

An optimist, son, is a person who doesn't give a hang what happens so long as it doesn't happen to him.

Appropriate

Did you-all have a special celebration foh yo' wooden wedding?

Yassah, we did, in a way. She hit me on de haid wid a rolling pin, 'cause Ah wouldn't split no kindling foh her.

Sudden

Dave had taken his girl to lunch, and she had spoken to a nice looking man at the next table.

"Is that man a friend of yours?" asked Dave.

"Yes," she replied.

"Well, why don't we ask him to join us?"

"Oh, Dave, this is so sudden."

"What's so sudden?"

"Why—why—he's our minister."

Rain vs. Rhetoric

How did you like my speech on the agricultural problem?

'Twarn't bad; but a good day's rain would do a heap more good.

Timid Type

"Would you marry a man who would try to use matrimony to avoid military service?"

"Sure, I would. That's the kind of a man you could soon teach to make up beds and wash dishes."

Half Right

What did you think of my speech on sound economics?

Well, I should say there was enough sound, anyway.

Inclusive

"You sure should have heerd de new pastah pray."

"Was he fervent?"

"Fervent? Why, brudder, he done asked de Lawd for things none of us ebber knew He had!"

Revealing

Mary had a little dress,
Dainty, chic and airy;
It didn't show the dirt a bit,
But, gosh how it showed Mary!

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